Australian Government
Australian Institute of Health and Welfare

# National Bowel Cancer Screening Program

## Monitoring report 2020

AIHW

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Australian Institute of Health and Welfare
Canberra

Cat. no. CAN 133

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This publication is part of the Australian Institute of Health and Welfare's Cancer series. A complete list of the Institute's publications is available from the Institute's website <www.aihw.gov.au>.

ISSN 2651-9623 (Online)
ISSN 1039-3307 (Print)
ISBN 978-1-76054-701-1 (Online)
ISBN 978-1-76054-702-8 (Print)

**Suggested citation**
Australian Institute of Health and Welfare 2020. National Bowel Cancer Screening Program: monitoring report 2020. Cancer series no.128. Cat. no. CAN 133. Canberra: AIHW.



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Published by the Australian Institute of Health and Welfare.

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# Contents

# Summary

The National Bowel Cancer Screening Program (NBCSP) began in 2006. It aims to reduce the morbidity and mortality from bowel cancer by actively recruiting and screening the eligible target population, aged 50–74, for early detection or prevention of the disease. This monitoring report is the fifth to examine the NBCSP using the current key performance indicators.

In 2020, it is estimated that about 7,227 people aged 50–74 will be diagnosed with bowel cancer (around 47% of all bowel cancers diagnosed) and 1,905 people in this age group will die from the disease (around 36% of all bowel cancer deaths).

## Participation

Of the 5 million people invited between January 2017 and December 2018, 42% participated in the program. The national participation rate was similar to that for the previous rolling 2-year period (2016–2017) (41%). The re-participation rate for those who took part in their previous invitation round and were receiving a subsequent screening invitation was 80%.

## Screening results

In 2018, 78,600 Australians returned a positive screening test, giving a 7% screening positivity rate. Of those who received a positive screening test, 66% reported a follow-up diagnostic assessment. The median time from positive screening test result to diagnostic assessment was 51 days.

## Cancers and adenomas detected

As form return is not mandatory, diagnostic assessment data were not considered complete enough to allow formal performance indicator reporting. However, of the data available for participants who had a diagnostic assessment in 2018, 1 in 30 were diagnosed with a confirmed or suspected cancer (251 and 1,432, respectively) and adenomas were diagnosed in a further 6,149 (1 in 8 participants assessed). Adenomas are benign growths with potential to become cancerous; their removal lowers the risk of future bowel cancers developing.

## Population groups

Participants who identified as being of Aboriginal or Torres Strait Islander origin, as well as those who lived in *Very remote* areas and those who lived in low socioeconomic areas all had higher rates of positive screens (warranting further assessment), but lower rates of follow-up diagnostic assessment, and a longer median time between a positive screen and assessment.

## Since the NBCSP began

Since the program began in August 2006, about 6.8 million NBCSP screening tests have been completed, with almost 3.8 million people participating at least once, and about 337,000 participants having a diagnostic assessment to follow up a positive screening result. From the data available for participants who have had diagnostic assessment, 1 in 30 have been diagnosed with a confirmed or suspected cancer and 1 in 7 have had an adenoma detected. Previous data linkage studies by the Australian Institute of Health and Welfare found that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a, 2018a, 2018b).

# Data at a glance

### Table 1: Summary of NBCSP performance indicators[(a)], Australia

| Performance indicator (PI) | | Definition | Value |
|---|---|---|---|
| PI 1* | Participation rate | The percentage of people invited to screen through the NBCSP between **1 January 2017 and 31 December 2018** who returned a completed screening test within that period or by **30 June 2019**. | 42% |
| PI 2 | Screening positivity rate | The percentage of people who returned a valid NBCSP screening test and received a positive screening result (warranting further assessment) between **1 January 2018 and 31 December 2018**. | 7% |
| PI 3 | Diagnostic assessment rate | The percentage of people who returned a positive NBCSP screening test (warranting further assessment) between **1 January 2018 and 31 December 2018** and had follow-up diagnostic assessment within that period or by **31 October 2019**[(b)]. | 66% |
| PI 4 | Time between positive screen and diagnostic assessment | For those who received a positive NBCSP screening test (warranting further assessment) between **1 January 2018 and 31 December 2018**, the median time between the positive screen and a follow-up diagnostic assessment within that period, or by **31 October 2019**[(b)]. | 51 days |
| PI 9 | Adverse events—hospital admission | The rate at which people who had a diagnostic assessment between **1 January 2018 and 31 December 2018** were admitted to hospital within 30 days of their assessment. | 1.2 per 10,000 assessments |
| PI 10 | Incidence of bowel cancer | The (estimated) incidence of bowel cancer per 100,000 estimated resident population aged 50–74 in **2020**[(c)]. | 99 cases per 100,000 people |
| PI 11 | Mortality from bowel cancer | The (estimated) mortality of bowel cancer per 100,000 estimated resident population aged 50–74 in **2020**[(c)]. | 26 deaths per 100,000 people |

* PI—performance indicator. Hereafter in this report, the abbreviation is used when referring to a specific indicator (for example, PI 3 Diagnostic assessment rate); otherwise, the full expression is used.

(a) NBCSP performance indicators presented here differ from the performance measures reported in monitoring reports before 2016. See 'Changes in monitoring the NBCSP' in Appendix C for further details.

(b) Due to the NBCSP Register transition in mid-November 2019, data are reported as at 31 October; hence, for this report, these performance indicators have only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. For further information, see Box 1.

(c) Rates for 2020 are estimated based on 2007–2016 data for incidence and 2009–2018 data for mortality. See Appendix D for further details.

*Notes:*

1. PIs 3–9 rely on information being reported to the NBCSP Register, hereafter generally referred to as 'the Register' in the body of this report. As the return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. PI 5a (adenoma detection rate), PI 5b (positive predictive value, or PPV, of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See 'Current reporting limitations' on page 4 for more details.

**Box 1: Truncated reporting period used in this report**

**NBCSP Register data source transition**

Data for this report were extracted from the NBCSP Register, maintained by Services Australia (formerly the Department of Human Services, or the DHS). From mid-November 2019, the NBCSP Register data were transitioned from Services Australia to the National Cancer Screening Register (NCSR). Data from the NCSR could not yet be analysed for this report so data from the previous DHS register were used.

Due to this transition, October 2019 was the last complete month of data contained within the DHS register, and analyses in this report include events as at 31 October 2019. This truncated reporting period may affect reporting of PI 3 Diagnostic assessment rate and PI 4 Time between positive screen and diagnostic assessment. These 2 indicators have only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. Given this, data for these performance indicators may not be comparable with those published in previous monitoring reports.

Following the November transition, the NCSR is the sole source of National Bowel Cancer Screening Program data in Australia. This monitoring report will be the last to use NBCSP Register data, with future editions sourcing data from the NCSR.

# 1 Introduction

## 1.1 Purpose of this report

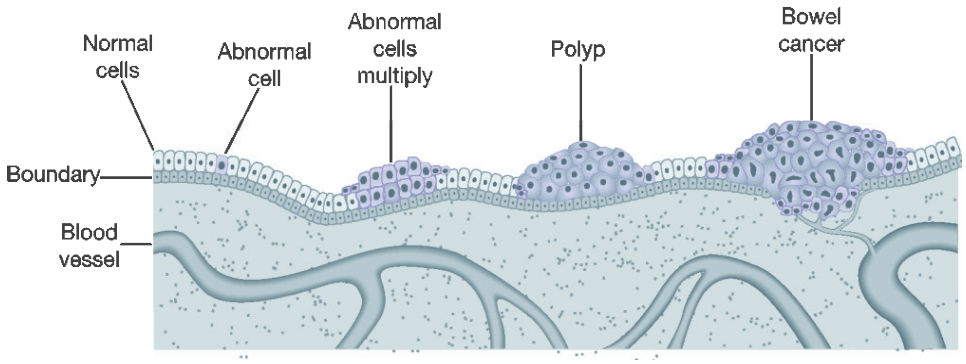
This report is the fifth to monitor data for the National Bowel Cancer Screening Program (NBCSP), based on the current NBCSP key performance indicators (AIHW 2014b). To ensure that the most recent data are used for each indicator, the time frame in which each is analysed can vary. However, where possible, analysis for indicators includes the period from 1 January 2018 to 31 December 2018.

## 1.2 Bowel cancer facts

### Defining bowel cancer

Bowel cancer (or colorectal cancer) generally develops through a multistage process in which a series of cellular mutations occur over time. Most bowel cancers start in the epithelial cells, which form part of the inner lining of the large bowel (intestinal mucosa layer). Early stages of these mutations result in benign polyps. However, a polyp may mutate further and become a benign adenoma and, ultimately, a malignant bowel cancer (Figure 1.1). Later stages of bowel cancer can spread to other sites in the body through the lymphatic or vascular system.

**Figure 1.1: Beginnings of bowel cancer**






#### Stage

Bowel cancer stage describes the extent or spread of cancer in the body at diagnosis. Staging is usually based on the size of the tumour, whether lymph nodes contain cancer, and whether the cancer has spread from the original site to other parts of the body (Sobin et al. 2010). Cancer Australia, in consultation with state and territory cancer registries and the Australian Institute of Health and Welfare (AIHW), developed cancer staging rules for high-incidence cancers (including bowel cancer). These registry-defined cancer stages are closely related to the Tumour, Nodes and Metastasis (TNM) Classification of Malignant Tumours. Prognosis is often related to what stage of development the cancer has reached when first diagnosed, with smaller, less developed cancers having better prognoses than advanced cancers (Table 1.1).

**Table 1.1: Registry-defined Australian stages of bowel cancer, 2011**

| Registry defined Australian stage | Description | 5-year relative survival estimates |
|---|---|---|
| I | Stage I – equivalent to TNM stage I: Early stage | 99% 5-year survival rate |
| II | Stage II – equivalent to TNM stage II: Early stage | 89% 5-year survival rate |
| III | Stage III – equivalent to TNM stage III: Locally advanced | 71% 5-year survival rate |
| IV | Stage IV – Equivalent to TNM stage IV: Metastatic | 13% 5-year survival rate |

*Note:* Survival estimates were sourced from 2011 Australian stage data (AIHW 2019e).

## Risk factors for bowel cancer

A risk factor is any factor associated with an increased likelihood of a person's developing a health disorder or health condition. It is not known what causes bowel cancer; however, as at December 2016, several risk factors have been identified that may increase the chance of developing it—see Box 1.1 (AIHW 2019c; Bouvard et al. 2015; IARC 2014; WCRF & AICR 2007).

**Box 1.1: Risk factors for bowel cancer**

**Behavioural and biomedical factors**

Personal and lifestyle factors associated with an increased risk of bowel cancer include:

- excess body fat and physical inactivity
- high intake of particular foods (such as processed meat)
- high alcohol consumption
- diet high in sugar sweetened beverages
- diet low in milk
- smoking.

**Family history and genetic susceptibility**

Some gene mutations increase the risk of bowel cancers, and these can also be passed from parent to child. About 20% of bowel cancers can be attributed to a hereditary component (Weitz et al. 2005).

**Ionising radiation**

Ionising radiation from radiology (diagnostic X-rays), working in the nuclear industry and natural sources can be a risk factor for bowel cancer.

## Bowel cancer treatment

The aim of bowel cancer treatment is generally to remove the cancer and any cancer cells that may be left in the bowel or other parts of the body. However, treatment can vary based on individual factors, such as the type of cells involved, the size of the tumour and the bowel cancer stage—some patients may receive palliative care. Treatment of bowel cancer commonly involves surgery to remove the cancer, with or without chemotherapy or radiation therapy.

Early diagnosis of bowel cancer can improve treatment outcomes and survival. Further, removal of non-benign polyps (polypectomy) and adenomas during a colonoscopy reduces

the risk of their developing into bowel cancer. The excision of adenomatous polyps, together with regular surveillance, has been found to reduce bowel cancer incidence (Winawer et al. 1993) and mortality (Zauber et al. 2012).

## 1.3 Bowel cancer screening

Bowel cancer may be present for many years before a person shows symptoms, such as visible rectal bleeding, change in bowel habit, bowel obstruction or anaemia. Often, symptoms such as these are not exhibited until the cancer has reached a relatively advanced stage. However, non-visible bleeding of the bowel may occur in the pre-cancerous stages (Figure 1.1) for some time. The relatively slow development of bowel cancer means that pre-cancerous polyps and adenomas, and early stage cancers, can potentially be screened for and treated. This makes bowel cancer a valid candidate for population screening (Standing Committee on Screening 2016).

A common method of bowel cancer screening is through an Immunochemical Faecal Occult Blood Test (iFOBT). An iFOBT is a non-invasive test that can detect microscopic amounts of blood in a sample from a bowel motion, which may indicate a bowel abnormality, such as an adenoma or cancer.

### National Bowel Cancer Screening Program

In Australia, government-funded, population-based bowel cancer screening is available through the NBCSP. The NBCSP started in 2006 and is managed by the Department of Health in partnership with state and territory governments. Its goal is to reduce the morbidity and mortality from bowel cancer by actively recruiting and screening the target population for early detection or prevention of the disease.

The AIHW conducted a study of people diagnosed with bowel cancer between 2006 and 2008. The study showed that NBCSP invitees (particularly those participating) who had been diagnosed with bowel cancer had a lower risk of dying from the disease and were more likely to have less advanced bowel cancers when diagnosed than non-invitees. These findings show that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a). Recent AIHW data linkage projects have further supported these findings (AIHW 2018a; 2018b).

The latest *Clinical Practice Guidelines for the Prevention, Early Detection and Management of Colorectal Cancer* were endorsed by the National Health and Medical Research Council in 2017 (CCACCGWP 2017). These guidelines recommend that biennial iFOBT bowel cancer screening for the asymptomatic Australian population begin at age 50 and continue to age 74. A staged roll-out of the program was used to help ensure that health services, such as diagnostic assessment and treatment options, were able to meet an increased demand as more people were invited to screen.

The roll-out of biennial screening for all eligible Australians in the target age group (50–74) was completed in 2020. Eligible Australians will now be sent an iFOBT screening kit and invited to screen every 2 years between their 50th and 74th birthdays. To participate, invitees complete the screening test and post it to the NBCSP pathology laboratory for analysis. Results are sent to the participant, to the participant's nominated primary health-care practitioner (PHCP) and to the Register. Participants with a positive screening result, indicated by blood in the stool sample, are advised to consult their PHCP to discuss further diagnostic assessment—in most cases, a colonoscopy.

For more information on the NBCSP, see Appendix C and www.cancerscreening.gov.au.

## Monitoring the NBCSP

NBCSP participant data come from a variety of sources along the screening pathway. Data are collected electronically, as well as from forms that participants, PHCPs, colonoscopists and pathologists and other medical staff complete and return to the Register. However, as form return is not mandatory, these data may be incomplete.

This report is the fifth to present national data for the NBCSP, using the current key performance indicators developed by the National Bowel Cancer Screening Program Report and Indicator Working Group. These indicators have been endorsed by the Standing Committee on Screening, the Community Care and Population Health Principal Committee, the National Health Information Standards and Statistics Committee, and the National Health Information and Performance Principal Committee. They are consistent with the 5 Australian Population-Based Screening Framework steps: recruitment, screening, assessment, diagnosis, and outcomes (AIHW 2014b). See Appendix C for a summary of changes in monitoring the NBCSP.

### Current reporting limitations

Except for participation and iFOBT results, the completion and sending of other NBCSP forms or data by practitioners is not mandatory and therefore data—and results—for PIs 3 to 9 are not complete.

Other limitations of the NBCSP data include the lack of reliable population subgroup identification at the time of invitation. Participants self-identify as being an Aboriginal and/or Torres Strait Islander, having disability or speaking a language other than English at home by completing and returning a participant details form, along with their iFOBT for analysis. Membership of these subgroups is reliably known only for those who participate; hence, it is not possible to accurately determine NBCSP participation rates for these subgroups due to the lack of denominators (invitations issued) for them. Ways to reduce these limitations are constantly being investigated; Chapter 5 in this report gives estimates of participation for these subgroups using proportions from the latest Census.

Seven performance indicators are aspirational, in that there is either a lack of national data or incomplete data. In this report, PI 5a (adenoma detection rate), PI 5b (positive predictive value, or PPV, of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate) and PI 6b (the PPV of diagnostic assessment for detecting colorectal cancer) are not formally reported due to incomplete data. These indicators require complete data return from histopathology. As well, PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not formally reported due to data unavailability. Lastly, PI 9 (adverse events—hospital admission) requires linkage with complete national hospital admissions data, which is not currently possible. However, the Register currently has (incomplete) information on adverse events, and this will be used until a more complete adverse event data source becomes available.

## Expenditure on the NBCSP in 2017–18

The NBCSP is funded through direct appropriation from the Australian Government, plus a National Partnership Payment for the jurisdictional participant follow-up functions. NBCSP invitations are managed and sent out centrally, with states and territories providing local program promotion and a follow-up function for those who receive positive screening results.

In 2017–18, an estimated $75.3 million was spent on the NBCSP (Table A1.1). As the roll-out of biennial screening for those aged 50–74 expands (completed from 2020), this amount is expected to rise.

# 2 Picture of bowel cancer in Australia

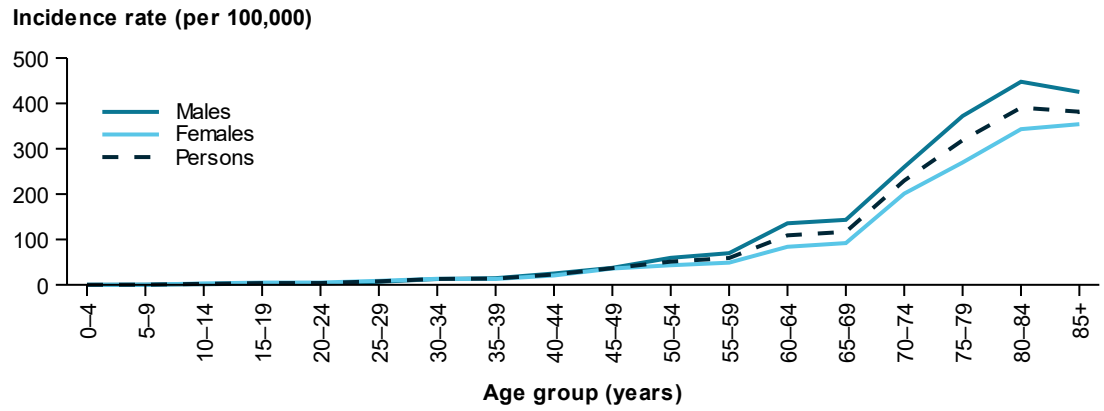
## 2.1 Number of new cases

In 2020, it is estimated that 7,227 people aged 50–74 will be diagnosed with bowel cancer (around 47% of all bowel cancer diagnoses)—an age-standardised rate (ASR) of 99 new cases diagnosed per 100,000 people. It is estimated that, in 2020, bowel cancer will be the fourth most commonly diagnosed cancer in Australians of all ages (after breast and prostate cancer, and melanoma) (AIHW 2020).

| Target age group (50–74 years) | All ages |
|---|---|
| 7,227 new cases estimated for 2020<br>99 new cases per 100,000 target-age people | 15,494 new cases estimated for 2020<br>51 new cases per 100,000 people |

Bowel cancer risk increases with age. In 2020, the incidence rate is expected to remain higher for people aged 45 and over than for younger people (Figure 2.1).

**Figure 2.1: Age-specific incidence rates of bowel cancer, by sex, Australia, 2020**




*Notes*

1. The 2020 estimates are based on 2007–2016 incidence data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

*Source:* Table A3.24.

It is estimated that a person's risk of being diagnosed with bowel cancer between the ages of 50 and 74 is 28 in 1,000 (about 1 in 36). This risk is higher than for those aged 0–49 (5 in 1,000) and lower than for those aged 75 and over (53 in 1,000). This increase in absolute risk from age 50 is part of the evidence base behind the guideline that bowel screening programs begin at age 50 (CCACCGWP 2017).

# 2.2 Number of deaths

**Box 2.1: Changes to bowel cancer mortality coding**

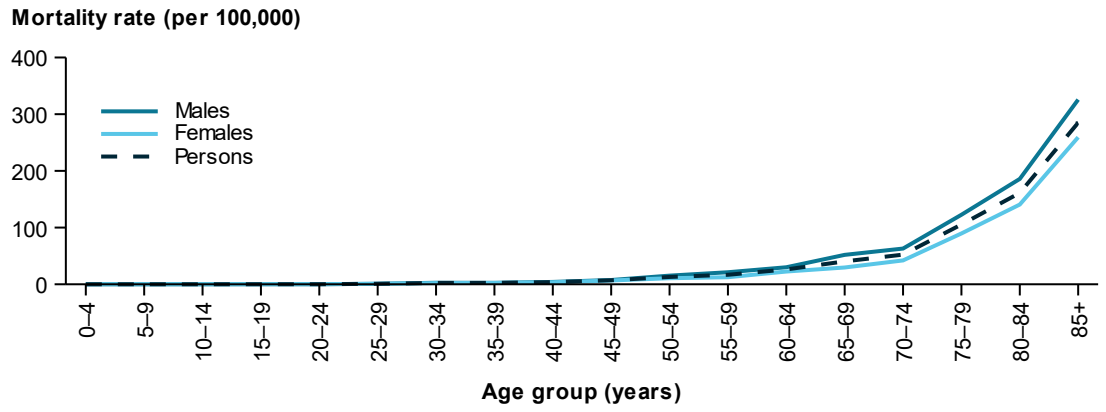
The AIHW uses the National Mortality Database (NMD) to report cancer mortality, a database coded and compiled by the Australian Bureau of Statistics (ABS). ABS advice notes that where 'bowel cancer' is recorded on the death certificate, internationally agreed rules state that the cancer should be coded to a less specific code (C26.0) as the specific site of the cancer is not known (ABS 2016). The ABS advises further that the code C26.0 should be included alongside deaths due to cancers of the colon and rectum (C18–C20) when assessing 'bowel cancer' deaths. For this reason, monitoring reports for the NBCSP from 2019 onwards use C18–C20, and now also include C26.0 when reporting deaths from bowel cancer using the NMD. This approach differs from that used in previous versions of this report and will result in a greater number of deaths being attributed to bowel cancer. Hence, caution should be considered when comparing trends in bowel cancer mortality here with those in NBCSP monitoring reports issued before 2019.

In 2020, it is estimated that there will be 1,905 bowel cancer deaths in people aged 50–74 (around 36% of all bowel cancer deaths), which is equivalent to 26 deaths for every 100,000 people. It is estimated that bowel cancer will remain the second leading cause of cancer death in Australians of all ages (after lung cancer) (AIHW 2020).

| Target age group (50–74 years) | All ages |
|---|---|
| 1,905 deaths estimated in 2020<br>26 deaths per 100,000 target-age people | 5,322 deaths estimated in 2020<br>17 deaths per 100,000 people |

It is estimated that, in 2020, the mortality rate will be higher for people aged 50 and over than for younger people and will continue to rise for each subsequent age group, for both men and women (Figure 2.2).

**Figure 2.2: Age-specific mortality rates of bowel cancer, by sex, Australia, 2020**




*Notes*

1. The 2020 estimates are based on 2009–2018 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

*Source:* Table A3.28.

The risk of dying from bowel cancer increases with age, estimated as being:

- 1 in 1,000 before age 50
- 7 in 1,000 for ages 50 and 74
- 14 in 1,000 for ages 75 and over.

Biennial screening for those aged 50–74 was fully rolled out from 2020. It is expected that, once it has been in place for a number of years, the risk of diagnosis and death for those aged 75 and over will be reduced, as those people will have been consistently invited to screen for abnormalities over the preceding 25 years.

## 2.3 Survival

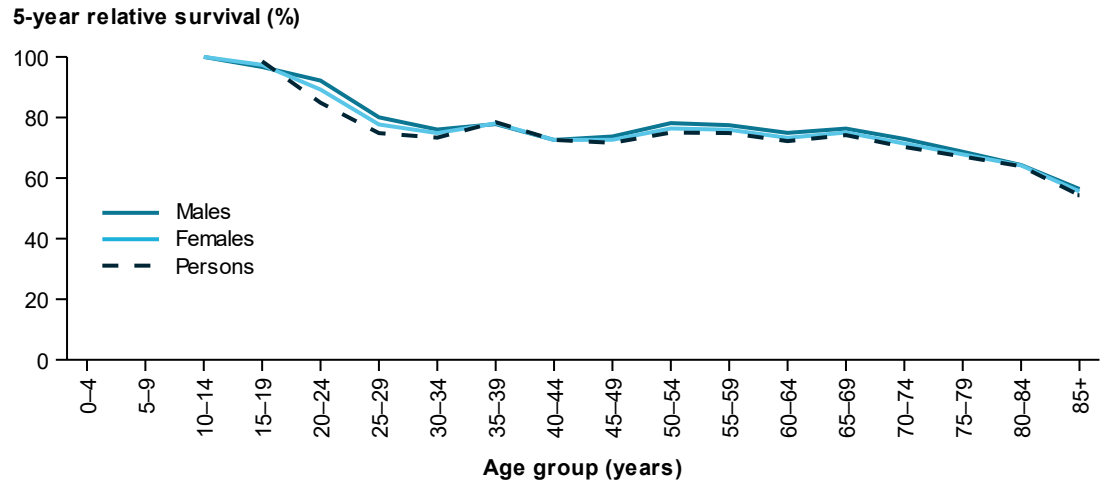
Information on survival indicates cancer prognosis and the effectiveness of treatment available. Survival of less than 100% suggests that those with bowel cancer have a lower chance of surviving for at least 5 years after diagnosis than the general population.

Between 2012 and 2016, Australians aged 50–74 who were diagnosed with bowel cancer had a 74% chance of surviving for 5 years compared with their counterparts in the general population.

| Target age group (50–74 years) | All ages |
|---|---|
| 74% 5-year relative survival (2012–2016) | 70% 5-year relative survival (2012–2016) |

Between 2012 and 2016, 5-year relative survival was lower for people over the age of 70 than for younger people (Figure 2.3).

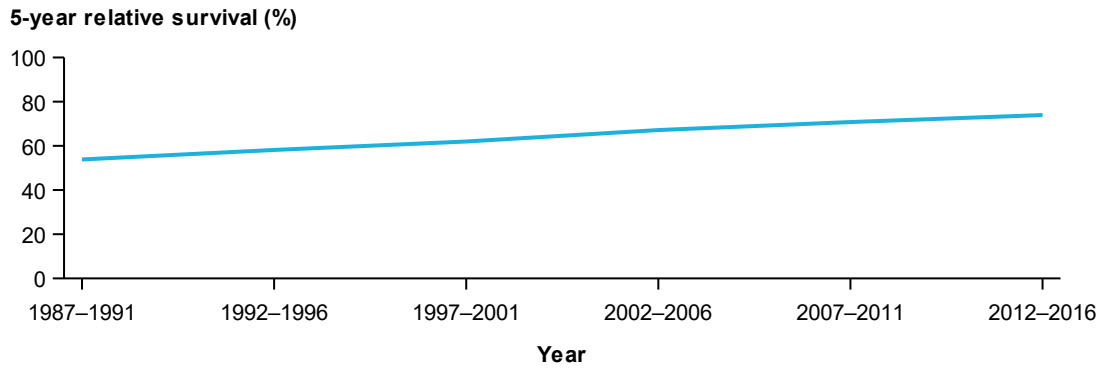
**Figure 2.3: Five-year relative survival from bowel cancer, by age group and sex, Australia, 2012–2016**




*Source*: Table A2.1.

Between 1987–1991 and 2012–2016, the 5-year relative survival rate from bowel cancer for people aged 50–74 at diagnosis rose from 54% to 74% (Figure 2.4).

**Figure 2.4: Trend in 5-year relative survival from bowel cancer, 50–74 years at diagnosis, Australia, 1987–1991 to 2012–2016**

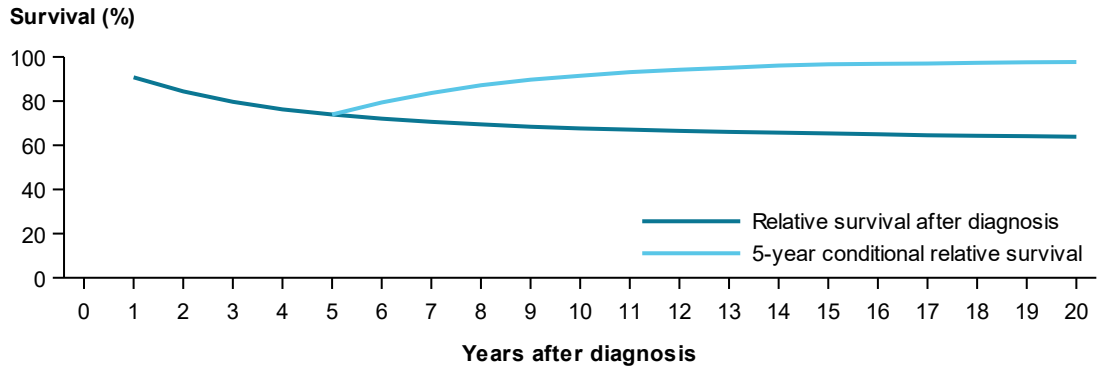



*Source:* Table A2.2.

Relative survival shows the probability of survival at diagnosis. Conditional relative survival estimates show the probability of surviving a given number of years, provided that an individual has already survived a specified amount of time after diagnosis.

When first diagnosed with bowel cancer, people aged 50–74 had a lower (74%) chance of surviving for at least 5 years after diagnosis than the general population; however, among those who had already survived 5 years from their initial bowel cancer diagnosis, the chance of surviving for at least another 5 years (5-year conditional relative survival) was 92% (Figure 2.5).

**Figure 2.5: Relative survival at diagnosis and 5-year conditional relative survival from bowel cancer, 50–74 years at diagnosis, Australia, 2012–2016**




*Note:* Conditional relative survival estimates show the probability of surviving bowel cancer for a given number of years provided an individual has already survived a specified amount of time after diagnosis.

*Source:* Table A2.3.

## Prevalence of bowel cancer

Cancer survivorship focuses on the health and life of a person diagnosed with cancer after treatment until the end of life (NCI 2020). It is more than simply not dying from cancer; it focuses on living with, and life after, a cancer diagnosis (Jackson et al. 2013). Survivorship covers the physical, psychosocial and economic issues of cancer, including the later effects of treatment, secondary cancers and quality of life (NCI 2020).

Prevalence is the number of people alive (surviving) after a diagnosis of cancer. At the end of 2015, there were 54,520 Australians alive who had been diagnosed with bowel cancer in the previous 5 years and 90,242 who had been diagnosed in the previous 10 years (Table 2.1). When limiting to people aged 50–74 at the end of 2015, there were 28,546 alive after being diagnosed with bowel cancer in the previous 5 years and 46,198 after being diagnosed in the previous 10 years (Table 2.1).

**Table 2.1: Prevalence of bowel cancer, by age group and sex, Australia, end of 2015**

| Age group (years) | Sex | 5-year prevalence | | 10-year prevalence | |
|---|---|---|---|---|---|
| | | Number | Rate per 100,000 | Number | Rate per 100,000 |
| 50–74 | Males | 16,573 | 530.6 | 26,647 | 853.2 |
| | Females | 11,973 | 370.8 | 19,551 | 605.5 |
| | *Persons* | *28,546* | *449.4* | *46,198* | *727.3* |
| **All ages** | Males | 29,762 | 250.0 | 48,986 | 411.5 |
| | Females | 24,758 | 204.9 | 41,256 | 341.5 |
| | **Persons** | **54,520** | **227.3** | **90,242** | **376.3** |

*Source:* AIHW ACD 2016.

# 2.4 Burden of bowel cancer

Burden of disease analysis is used to assess and compare the impact of different diseases and injuries on a population. It involves determining their impact in terms of the following:

- the number of years of healthy life lost through living with an illness or injury (the non-fatal burden, years lived with disability, or YLD)
- the number of years of life lost through dying prematurely from an illness or injury (the fatal burden, years of life lost, or YLL)
- the number of disability-adjusted life years (DALY), which combines the non-fatal and fatal burden (or the combined impact of dying early and living with illness).

Burden of disease estimates capture both the quantity and quality of life, and reflect the magnitude, severity and impact of disease and injury within a population. Burden of disease studies can also estimate the contribution of specific risk factors to disease burden (known as the attributable burden) (AIHW 2019a).

The AIHW report *Australian Burden of Disease Study: impact and causes of illness and death in Australia 2015* (hereafter referred to as the ABDS 2015) found that over 96,900 years of healthy life were lost (from fatal and non-fatal outcomes) due to bowel cancer in 2015 (AIHW 2019a). This meant bowel cancer accounted for 2.0% of the total disease burden in Australia, making it the 13th most burdensome disease overall (11th in males and 14th in females). Bowel cancer (96,936 DALY) was the second most burdensome cancer in 2015 behind lung cancer (157,486 DALY); Australians lost many more years of life due to dying from bowel cancer (93.5% of total bowel cancer burden) than healthy years lost from living with the impacts of the disease (6.5% of total bowel cancer burden) (AIHW 2019b).

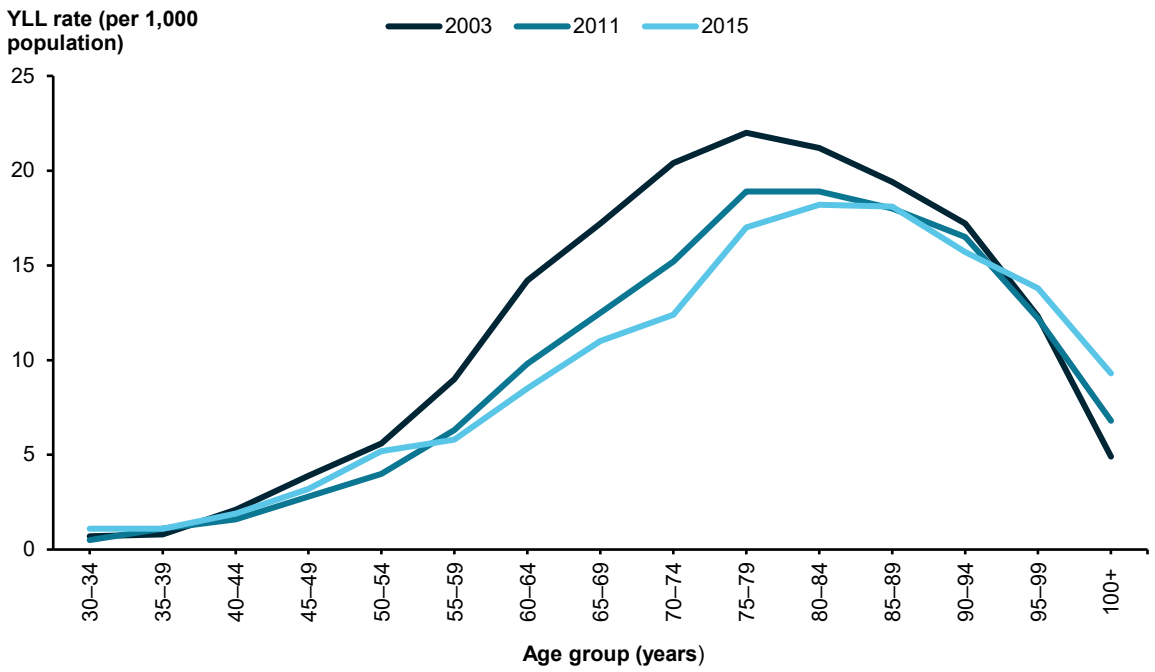
## Changes in burden since 2003

The NBCSP was introduced in 2006; hence, comparisons of the burden before and after this date, as well as during the full program roll-out, are of interest. The ABDS 2015 provides burden of disease estimates best matched to the Australian public health context for the

Australian population for 2015. Due to improvements in data sources and methodological changes, published estimates from previous Australian studies are not directly comparable with those for the ABDS 2015. However, estimates for 2011 and 2003, revised using the same methods as for 2015, were calculated to enable direct comparisons over time (Figure 2.6).

Between 2003 and 2015, the ASR of total burden from bowel cancer fell 24%, from 4.7 to 3.6 DALY per 1,000 people. This reduction was primarily due to a drop in fatal burden from 4.5 to 3.4 YLL per 1,000 people (AIHW 2019b). The change in YLL ASRs was driven by a shift towards people dying from bowel cancer at older ages, and a lower peak of 18.2 YLL per 1,000 people aged 80–84 in 2015 than the peak in 2003 of 22.0 YLL per 1,000 people aged 75–79.

**Figure 2.6: Change in fatal burden—YLL from bowel cancer, age-specific rate (per 1,000 people), 2003, 2011 and 2015**




*Source*: AIHW ABDS Database (AIHW 2019b); Table A2.4.

## Contribution of risk factors to bowel cancer burden

The ABDS 2015 calculated the proportion of the bowel cancer burden attributable to a number of behavioural, environmental and metabolic risk factors. Note that, as a person can have multiple risk factors and many risk factors are interrelated, the burden attributable to different risk factors needs to be considered independently and cannot be added together (AIHW 2019a).

After analysis to adjust for interrelated risk factors, the study estimated that about 55% of bowel cancer burden in 2015 was attributable to the combined impact of associated risk factors (AIHW 2019c). Of these, physical inactivity and overweight and obesity contributed the most individually to bowel cancer burden in 2015 (17% and 13%, respectively; although, as they are likely to be interrelated, their combined burden will be less than the sum of the individual burden estimates). A greater proportion of bowel cancer burden in males was due to overweight and obesity than in females (18% compared with 6%) (Table 2.2).

See *Australian Burden of Disease Study: methods and supplementary material 2015* (AIHW 2019d) for more information on the methods used to quantify the impact of specific risk factors.

**Table 2.2: Bowel cancer burden attributed to selected risk factors (DALY and proportion), 2015**

| | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| Risk factor | Attributable DALY | Proportion of bowel cancer burden (%) | Attributable DALY | Proportion of bowel cancer burden (%) | Attributable DALY | Proportion of bowel cancer burden (%) |
| Alcohol use | 2,640 | 4.8 | 2,706 | 6.4 | 5,346 | 5.5 |
| All dietary risks | 12,007 | 21.9 | 9,090 | 21.5 | 21,097 | 21.8 |
| Diet high in processed meat | 3,238 | 5.9 | 2,484 | 5.9 | 5,722 | 5.9 |
| Diet high in red meat | 3,666 | 6.7 | 2,806 | 6.6 | 6,472 | 6.7 |
| Diet high in sugar sweetened beverages | 277 | 0.5 | 49 | 0.1 | 325 | 0.3 |
| Diet low in milk | 5,821 | 10.6 | 4,472 | 10.6 | 10,293 | 10.6 |
| High blood plasma glucose | 3,537 | 6.5 | 1,966 | 4.7 | 5,503 | 5.7 |
| Occupational exposures & hazards | 1,345 | 2.5 | 486 | 1.2 | 1,831 | 1.9 |
| Overweight & obesity | 9,628 | 17.6 | 2,457 | 5.8 | 12,085 | 12.5 |
| Physical inactivity | 8,765 | 16.0 | 7,257 | 17.2 | 16,022 | 16.5 |
| Tobacco use | 3,200 | 5.8 | 3,928 | 9.3 | 7,128 | 7.4 |

*Note:* Attributable burden from multiple risk factors cannot be combined or added together due to the complex pathways and interactions between risk factors.

*Source:* AIHW 2019c.

# 3 Performance indicators

## 3.1 Summary

The Population Based Screening Framework (Standing Committee on Screening 2016) uses 5 incremental stages to describe a population screening pathway. The performance indicator data in this monitoring report have been applied to these stages in Figure 3.1 to show how the indicators relate to the framework. For further information on these indicator outcomes over the life of the NBCSP, see Appendix B.

Note that data for diagnostic assessments, adenomas and cancers detected and hospital admissions (PIs 3–9) rely on information being reported back to the Register; this reporting is not mandatory and is known to be incomplete.

### Recruitment

Of those invited in the 2-year period for 2017–2018, 42% participated in the NBCSP (Table A3.2). This is consistent with the 41% participation rate in the previous rolling 2-year period (2016–2017) (Table A3.5). The participation rate was higher for people receiving their second, third or later screening invitation (44%) than for those receiving their initial invitation to screen (31%) (Table A3.3). For those who had participated in their previous invite round, the re-participation rate was 80%.

### Screening and assessment

In 2018, 78,600 participants returned a positive screening test, giving a 7% screening positivity rate (Table A3.6). People who receive a positive screening result are encouraged to visit their PHCP for referral to diagnostic assessment. Of the people who received a positive screening test, 66% had a diagnostic assessment recorded (Table A3.10). Of those who had a diagnostic assessment, the median time between a positive screening result and a diagnostic assessment was 51 days (Table A3.18).

### Diagnosis

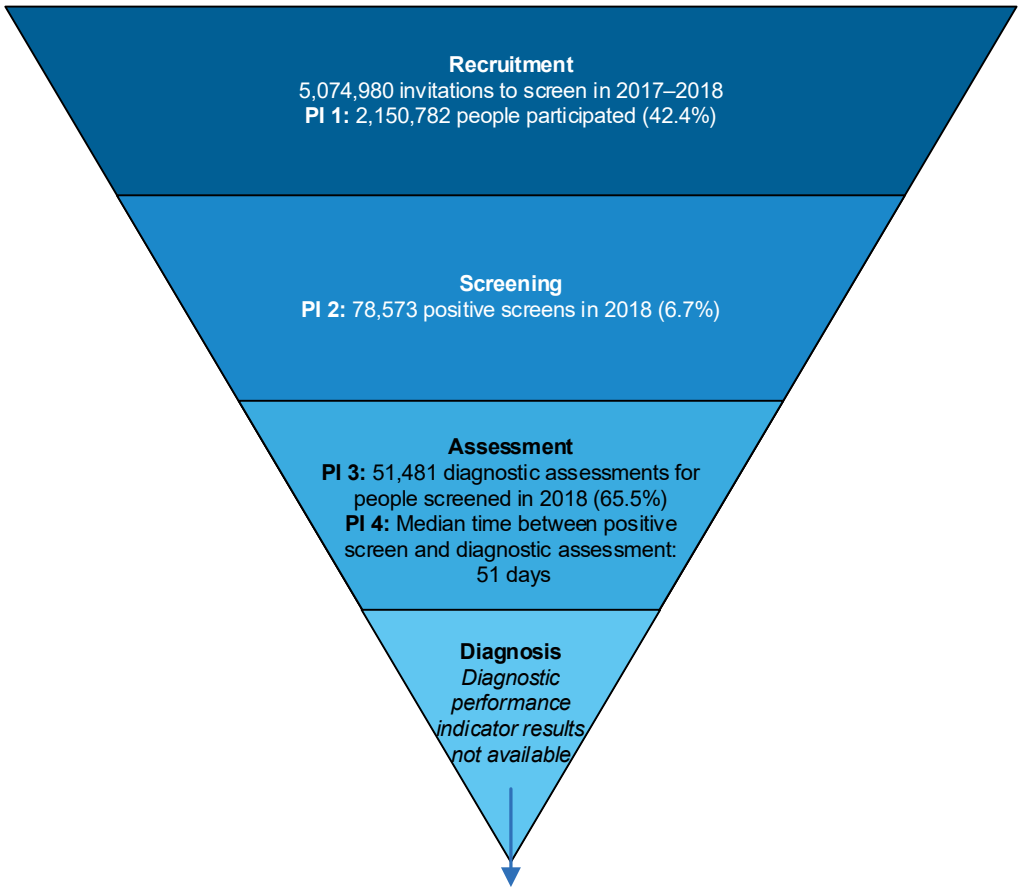
As return of the assessment form is not mandatory, diagnosis data were not considered to be complete enough to allow formal performance indicator reporting. However, using the available data for those assessed in 2018, 251 confirmed cancers, 1,432 suspected cancers and 6,149 adenomas were detected (Table A4.1). See Chapter 4 for a summary of bowel abnormality detection results, based on available assessment and diagnosis data. Also see *Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program 2018* (AIHW 2018b) for the most recent accurate PPV of diagnostic assessment for detecting bowel (colorectal) cancer.

### Outcomes

In 2018, 6 people who underwent a diagnostic assessment were admitted to hospital within 30 days of this procedure, giving a hospital admission rate after assessment of 1.2 per 10,000 assessments (Table A3.23).

In 2020, it is estimated that 7,227 people aged 50–74 will be diagnosed with bowel cancer (Table A3.24) and that 1,905 people aged 50–74 will die from the disease (Table A3.28).

**Figure 3.1: Summary of NBCSP performance indicators for this report, Australia**




***Assessment details***
*Those assessed in 2018*[(a)]

| | | |
|---|---|---|
| No issue or other diagnosis | 29,358 | (57.5%) |
| Biopsy awaiting histopathology | 13,909 | (27.2%) |
| Non-advanced adenomas | 3,241 | (6.3%) |
| Advanced adenomas | 2,908 | (5.7%) |
| Suspected cancer | 1,432 | (2.8%) |
| Confirmed cancer | 251 | (0.5%) |

**Outcomes**
*For morbidity and mortality*

| | | | |
|---|---|---|---|
| **PI 9:** | Adverse events | 1.2 per 10,000 | (2018) |
| **PI 10:** | Incidence | 99 per 100,000 | (2020) |
| **PI 11:** | Mortality | 26 per 100,000 | (2020) |

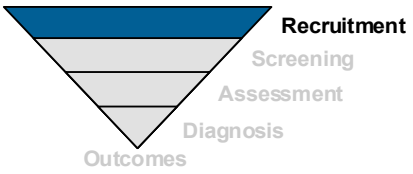
(a) Based on available data. Percentages may not sum to 100% due to rounding. 'No issue or other diagnosis' includes 13,861 assessments with no record of outcome, plus any non-cancer or adenoma diagnoses from colonoscopy or histopathology.

*Notes*

1. The recruitment indicator PI1 is reported against the 2-year calendar period 2017–2018, with follow-up to June 2019. The screening indicator PI2 is reported against the year 2018. The assessment and adverse events indicators are reported against the year 2018, with follow-up to October 2019 for assessments and to June 2019 for adverse events. Incidence and mortality are estimated rates for those aged 50–74 in 2020.
2. Assessment, diagnosis and outcomes (PIs 3–9) rely on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See 'Current reporting limitations' on page 4 for more details.

*Source:* NBCSP Register as at 31 October 2019.

# 3.2 Recruitment




## PI 1—Participation rate

**Definition:** The percentage of people invited to screen through the NBCSP between **1 January 2017 and 31 December 2018** who returned a completed screening test within that period or by **30 June 2019** (AIHW 2014b).

**Rationale:** Participation should be monitored to ensure acceptability, equity and uptake, with the aim that reductions in incidence, morbidity and mortality can be achieved. Without participation, the NBCSP cannot achieve earlier detection.

**Data quality:** All invitations issued and iFOBT kits returned are recorded in the Register.

**Guide to interpretation:** The number of individuals sent a screening invitation excludes those who deferred or opted out without completing their screening test. Appendix A contains details on the number of invitees who deferred or opted out (Table A3.1).

Data on participation by Indigenous Australians, by language spoken at home and by disability status are not currently available due to the lack of denominators for these subgroups. See Chapter 5 for estimates of participation for these subgroups.

Participation is measured over 2 years to align with the 2-year recommended screening interval. A consequence of this is that there are 'rolling' participation rates, in which there is an overlap of 1 calendar year between any 2 consecutively reported participation rates.

**National participation rate:** 42%.

The following figures apply for the 5,074,980 eligible people invited from 1 January 2017 to 31 December 2018:

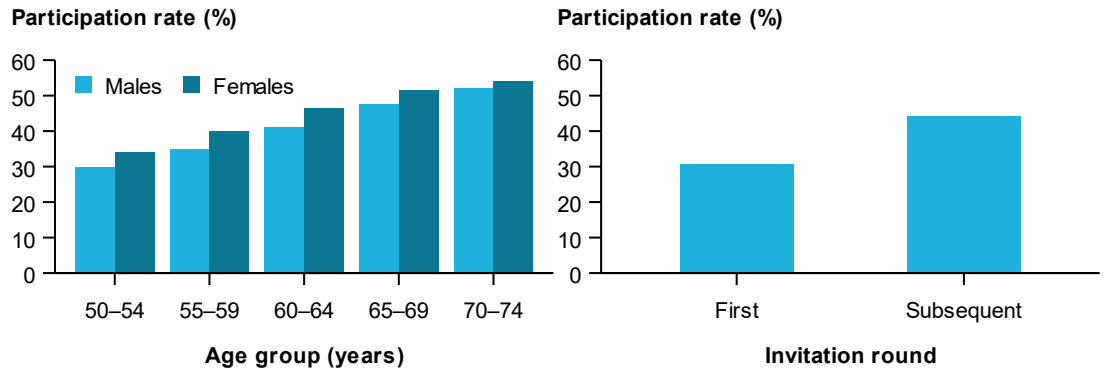
**Australia-wide:** A total of 2,150,782 people participated in the NBCSP, giving an overall Australia-wide participation rate of 42% (Table A3.2).

**Sex:** Female (45%) invitees had a higher participation rate than males (40%) (Table A3.2).

**Age:** The participation rate increased with each invitation age group, from 32% for people aged 50–54 to 53% for people aged 70–74 (Figure 3.2).

**Invitation round:** The participation rate was higher for people receiving their second or later (subsequent) screening invitation (44% compared with 31% for first round) (Figure 3.2). The re-participation rate for those who had participated in their previous invite round and were receiving a subsequent invitation was 80%.

**Figure 3.2: Participation of people aged 50–74, by sex and age and by invitation round, 2017–2018**



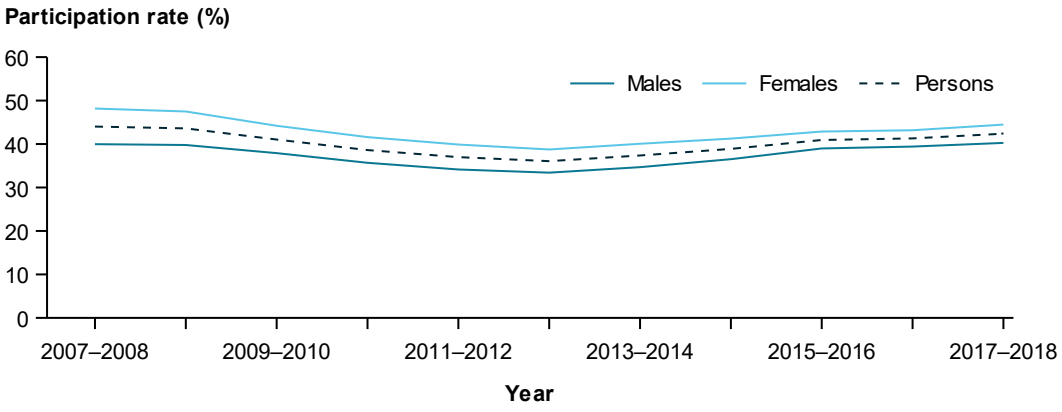

*Note:* Subsequent invitation round includes second, third and subsequent invitation rounds.

*Source:* Tables A3.2 and A3.3.

**Trend:** Monitoring reports before 2016 analysed participation differently from the indicator used in this report. This means that trend comparisons with rates published in those earlier reports cannot be made. To allow a trend comparison over time, the new participation indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.3).

Using this indicator across all program data to date, the participation rate fell from 44% in 2007–2008 to 36% in 2012–2013, then gradually rose to 42% in 2017–2018 (Figure 3.3). While the overall participation rate for the current (42%) and previous reporting period (2016–2017: 41%) was similar, it should be noted that participation across each 5-year age group invited increased over the 2 periods.

**Figure 3.3: Participation of people aged 50–74, by sex, 2007–2008 to 2017–2018**




*Notes*

1. Data presented are for rolling 2-year participation periods.
2. Trend data use the performance indicator specifications retrospectively on previous years' data.

*Source:* Table A3.5.

**State and territory:** The participation rate was highest for people living in Tasmania and South Australia (48%) and lowest for people living in the Northern Territory (29%) (Figure 3.4).

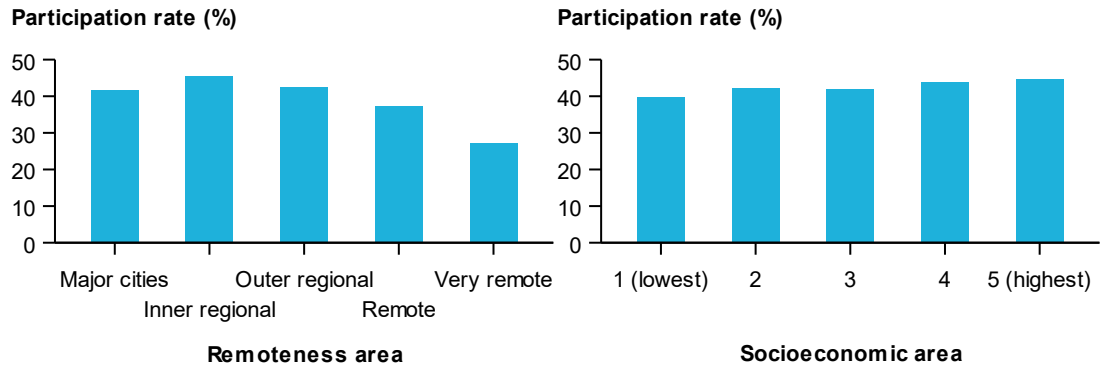
**Figure 3.4: Participation of people aged 50–74, by state and territory, 2017–2018**


*Source:* Table A3.4.

**Remoteness area:** The participation rate was highest for people living in *Inner regional* areas (45%) and lowest for people living in *Very remote* areas (27%) (Figure 3.5).

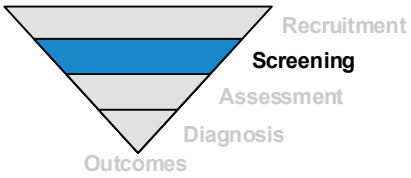
**Socioeconomic area:** The participation rate was highest for people living in the highest socioeconomic areas (45%) and lowest for those living in the lowest socioeconomic areas (40%) (Figure 3.5).

**Figure 3.5: Participation of people aged 50–74, by remoteness area and socioeconomic area, 2017–2018**




*Source:* Table A3.4.

# 3.3 Screening




## PI 2—Screening positivity rate

**Definition:** The percentage of people who returned a valid NBCSP screening test and received a positive screening result (warranting further assessment) between **1 January 2018 and 31 December 2018** (AIHW 2014b).

**Rationale:** The positive screening test rate determines the diagnostic assessment workload and lesion detection rate. It is important that the accepted positivity range is reviewed and revised (to improve lesion detection rates while limiting 'false' positive results) if necessary. Monitoring this is important for program planning and quality assurance. Further, monitoring the positivity rate by various stratifications may reveal emerging positive or negative trends that need to be investigated, and rectified.

**Data quality:** All iFOBT results are recorded in the Register.

**Guide to interpretation:** This indicator counts all tests analysed in the defined period, not tests analysed from those invited in the defined period; therefore, the cohort monitored is different from the cohort monitored in the participation indicator.

**National screening positivity rate:** 7%.

The following apply for the 1,181,247 invitees who had a screening test analysed in 2018:

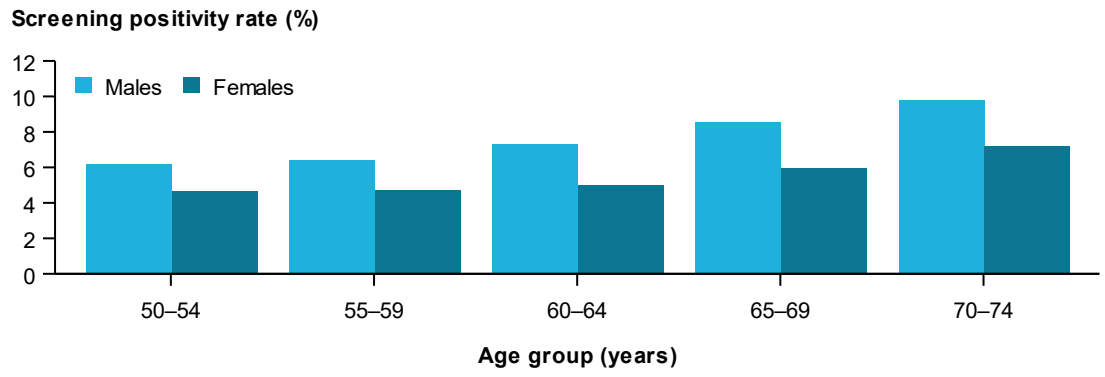
**Australia-wide:** A total of 78,573 people received a positive screening test result, giving an overall Australia-wide screening positivity rate of 7% (Table A3.6).

**Sex:** Male participants had a higher screening positivity rate than females (8% compared with 6% overall), and across all age groups (Figure 3.6).

**Age:** The screening positivity rate increased with each age group, from 5% for people aged 50–59 to 9% for those aged 70–74 (Figure 3.6).

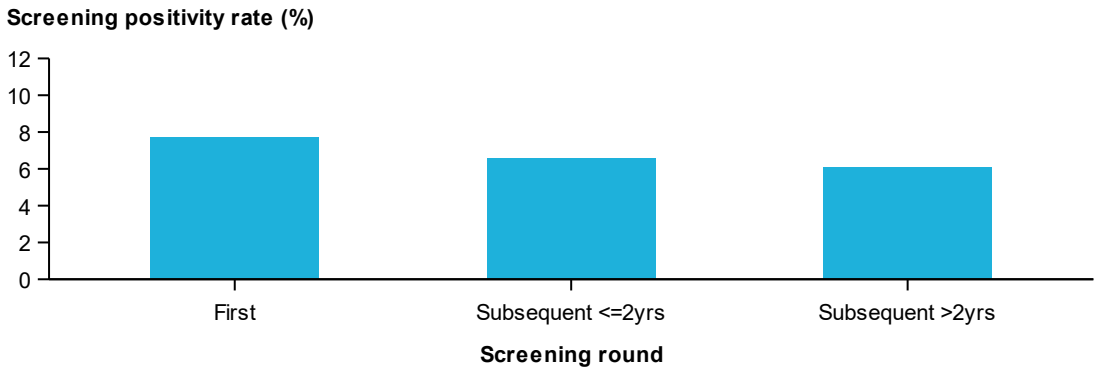
**Screening round:** The screening positivity rate was highest for people during their first round of screening (8% compared with 6% for those whose subsequent screen was more than 2 years after their first screen) (Figure 3.7).

**Figure 3.6: Screening positivity rate of people aged 50–74, by sex and age, 2018**




*Source:* Table A3.6.

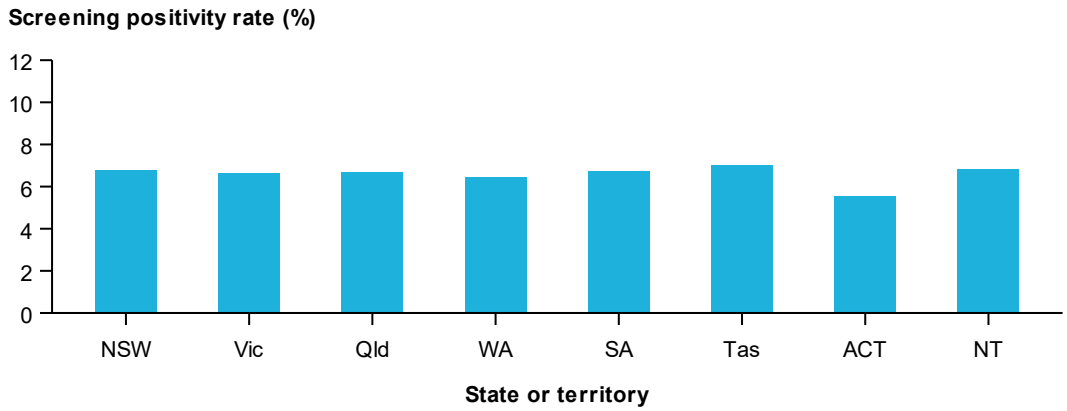
**Figure 3.7: Screening positivity rate of people aged 50–74, by screening round, 2018**




*Source:* Table A3.7.

**State and territory:** The screening positivity rate was consistently between 6–7% across jurisdictions, and just under 6% for people living in the Australian Capital Territory (Figure 3.8).

**Figure 3.8: Screening positivity rate of people aged 50–74, by state and territory, 2018**

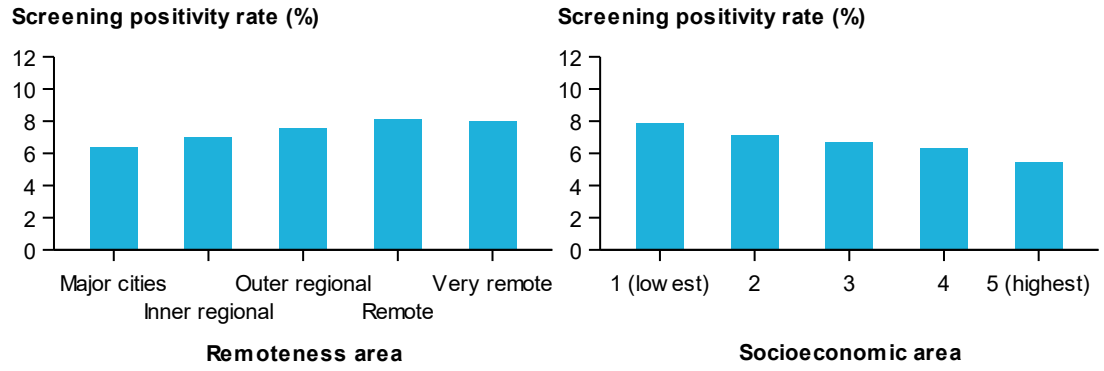



*Source:* Table A3.8.

**Remoteness area:** The screening positivity rate was highest for people living in *Remote* areas (8%) and lowest for those living in *Major cities* (6%) (Figure 3.9).

**Socioeconomic area:** The screening positivity rate was highest for people living in the lowest socioeconomic areas (8%) and lowest for those living in the highest socioeconomic areas (5%) (Figure 3.9).

**Figure 3.9: Screening positivity rate of people aged 50–74, by remoteness area and socioeconomic area, 2018**



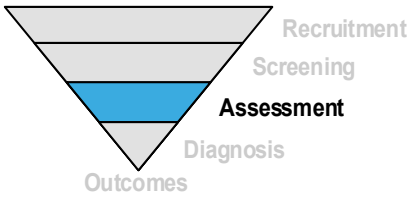

*Source:* Table A3.8.

**Indigenous status:** Indigenous Australians had a higher screening positivity rate than non-Indigenous Australians (10% compared with 7%) (Table A3.9).

**Language spoken at home:** Those who spoke a language other than English at home had a similar screening positivity rate to those who spoke English at home (around 7%) (Table A3.9).

**Disability status:** Those reporting severe or profound activity limitation had a higher screening positivity rate than those who did not report such a limitation (10% compared with 6%) (Table A3.9). Reasons for this difference are not well understood but may include a lower level of physical activity (Wolin et al. 2011) or comorbidities and medications that increase the likelihood of a positive iFOBT screening result in people with severe or profound activity limitation.

# 3.4 Assessment




## PI 3—Diagnostic assessment rate

**Definition:** The percentage of people who returned a positive NBCSP screening test (warranting further assessment) between **1 January 2018 and 31 December 2018** and had follow-up diagnostic assessment within that period or by **31 October 2019** (Box 1; AIHW 2014b).

Due to the NBCSP Register transition in mid-November 2019, data are reported as at 31 October; hence, for this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. For further information see Box 1.

**Rationale:** The appropriate movement of people from participation to diagnostic assessment is a key indicator of the efficiency of the program and its impact in reducing morbidity and mortality from bowel cancer. While not all participants with a positive screen will necessarily have an assessment, according to the Population Based Screening Framework (Standing Committee on Screening 2016), systems should be in place to ensure timely follow-up to diagnostic assessment for individuals with a positive screening test.

**Data quality:** This indicator relies on information being returned to the Register; however, this reporting is not mandatory, leading to incomplete data. Therefore, there is an unknown level of under-reporting for this indicator, and levels of under-reporting may differ across groups (for example, across jurisdictions, and across remoteness and socioeconomic areas).

**Guide to interpretation:** This indicator includes all people with a positive screen in the defined period, not all those invited in the defined period.

**National diagnostic assessment rate:** 66%.

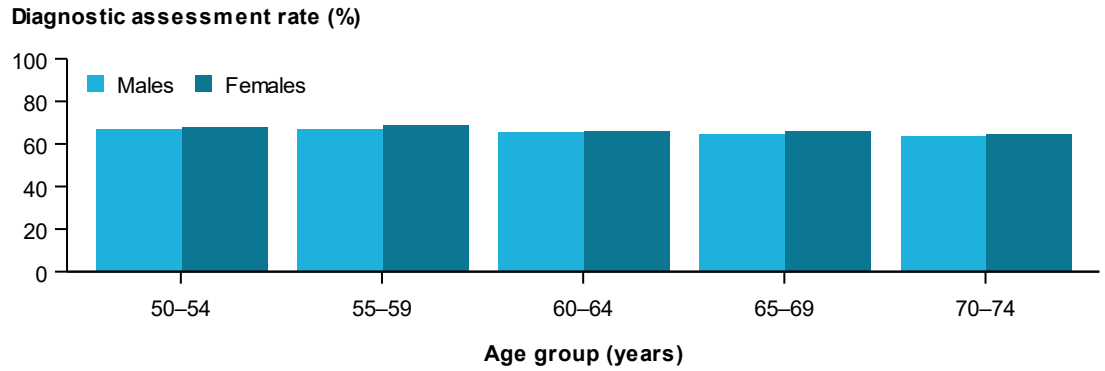
The following applies for the 78,573 participants with a positive screening test in 2018:

**Australia-wide:** A total of 51,481 people reported a follow-up diagnostic assessment (colonoscopy)—an overall Australia-wide diagnostic assessment rate of 66% (Table A3.10).

**Sex and age:** Diagnostic assessment rates were similar for females (66%) and males (65%), and were slightly lower for people aged 70–74 (64%) than for younger target age groups—67–68% for age groups 50–54 and 55–59 (Figure 3.10).

**Health-care provider:** Almost three-quarters (72%; 37,113) of diagnostic assessments recorded were performed through the private health-care system, with an additional 18% (9,022 assessments) recorded through the public health-care system (Table A3.11). Around 10% of diagnostic assessments did not state through which system (public or private) the follow-up assessment was performed. As this indicator relies on information being reported back to the Register, and because reporting is not mandatory, differences in the performance of diagnostic assessments by public and private providers should be considered with caution.

**Figure 3.10: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age group, 2018**




*Notes*

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, are based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
3. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

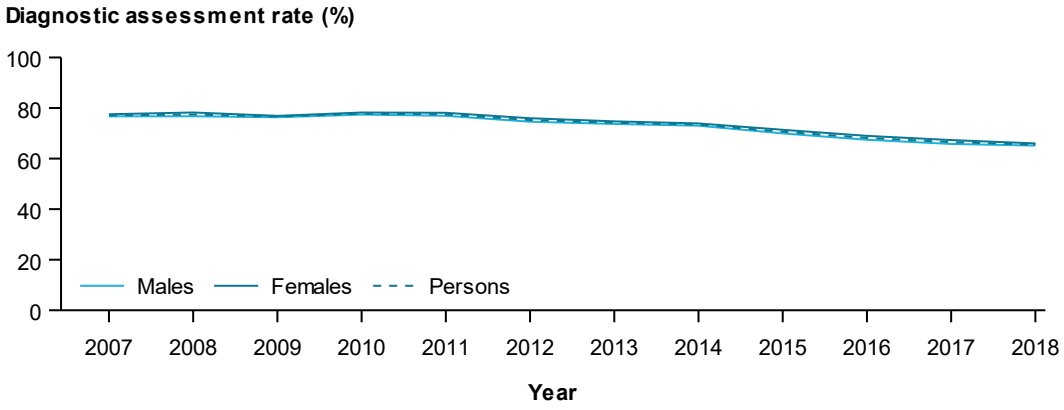
*Source:* Table A3.10.

**Trend:** Monitoring reports before 2016 used a different methodology to analyse the diagnostic assessment rate. So, trend comparisons with rates published in earlier reports cannot be made. To allow trends to be compared over time, the new indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.11).

Using this diagnostic assessment rate indicator across all program data to date, the follow-up diagnostic assessment rate was stable at between 77–78% between 2007 and 2011, and then gradually fell from 75% in 2012 to 66% in 2018. Differences in form return and varying pathway practices for diagnostic assessment between years may contribute to this outcome. Also note for 2018 only, this performance indicator had only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

**State and territory:** The follow-up diagnostic assessment rate was highest for people living in the Australian Capital Territory (78%) and lowest for those living in the Northern Territory (36%) (Figure 3.12). Note that differences in form return and varying pathway practices for diagnostic assessment may affect the results across jurisdictions.

**Figure 3.11: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex, 2007 to 2018**




*Notes*

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
3. Trend data used the performance indicator specifications retrospectively on previous years' data.
4. For 2018 only, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* Table A3.14.

**Figure 3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, 2018**


*Notes*

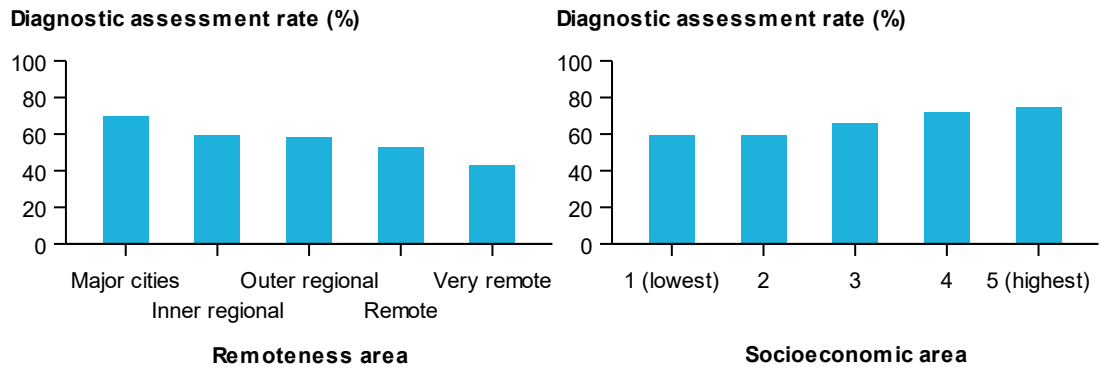
1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
3. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.
4. Differences across jurisdictions may involve differences in form return and varying pathway practices for diagnostic assessment.

*Source:* Table A3.12.

**Remoteness area:** The follow-up diagnostic assessment rate was highest for people living in *Major cities* (70%) and lowest for people living in *Very remote* areas (43%) (Figure 3.13).

**Socioeconomic area:** The follow-up diagnostic assessment rate was highest for people living in the highest socioeconomic areas (74%) and lowest for those living in the lowest socioeconomic areas (59%) (Figure 3.13).

**Figure 3.13: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by remoteness area and socioeconomic area, 2018**




*Notes*

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
3. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* Table A3.12.

**Indigenous status:** Indigenous Australians had a lower follow-up diagnostic assessment rate than non-Indigenous Australians (48% compared with 66%) (Table A3.13).

**Language spoken at home:** People who spoke a language other than English at home had a lower follow-up diagnostic assessment rate than those who spoke English at home (62% compared with 66%) (Table A3.13).

**Disability status:** People reporting severe or profound activity limitation had a lower follow-up diagnostic assessment rate than those not reporting such limitation (51% compared with 67%) (Table A3.13).

## PI 4—Time between positive screen and diagnostic assessment

**Definition:** For those who received a positive NBCSP screening test (warranting further assessment) between **1 January 2018 and 31 December 2018**, the median time between the positive screening test and a follow-up diagnostic assessment within that period or by **31 October 2019** (Box 1; AIHW 2014b).

Due to the NBCSP Register transition in mid-November 2019, data are reported as at 31 October; hence, for this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. For further information see Box 1.

**Rationale:** Waiting for a definitive diagnosis after a positive screen can create anxiety. There are various steps, participant decisions and waiting times that occur along the pathway between a positive screen and a diagnostic assessment. Therefore, this indicator should not be considered a hospital wait time indicator. However, after a positive screen, further diagnostic assessment should occur in a timely fashion as there is a defined risk of bowel cancer in those with a positive screening test—and any harms (such as anxiety) from a positive screen should be minimised.

**Data quality:** This indicator relies on information being reported to the Register; however, this reporting is not mandatory, leading to incomplete data. Therefore, there is an unknown level of under-reporting for it, and levels of under-reporting may differ across groups (for example, across jurisdictions and across remoteness and socioeconomic areas).

**Guide to interpretation:** This indicator includes all people with a positive screen in the defined period, not all those invited in the defined period.

Details of the number and proportion of participants for whom time between positive screen and diagnostic assessment was less than or equal to 30, 60, 120, 180 or 360 days, or greater, are included in tables A3.15–A3.17 (Appendix A) (together with median time and 90th percentile information in tables A3.18–A3.22).

**National median time between positive screen and diagnostic assessment:** 51 days.

The following apply for the 51,481 participants who had a positive screening test in 2018 with a diagnostic assessment recorded:

**Australia-wide:** The median time between positive screen and assessment was 51 days (Table A3.18).

**Sex:** Males and females had similar median times between a positive screen and assessment (52 days and 50 days, respectively) (Figure 3.14).

**Age:** The median time between a positive screen and diagnostic assessment was similar across age groups—52 days for people aged 50–54 and 50 days for those aged 70–74 (Figure 3.14).

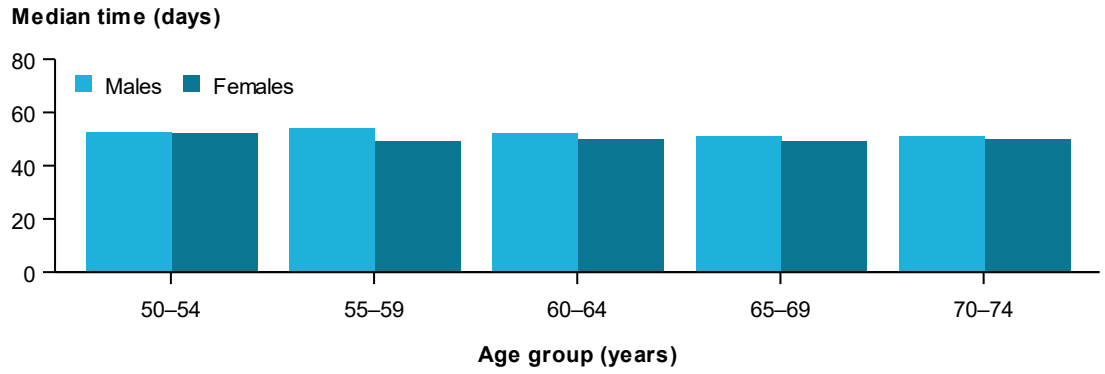
**Health-care provider:**

- The median time between a positive screen and diagnostic assessment for people who went through the private health-care system was 45 days (Table A3.19).
- The median time between a positive screen and diagnostic assessment for people who went through the public health-care system was 77 days (Table A3.19).

Around 10% of diagnostic assessments did not state through which system (public or private) the follow-up assessment was performed. As this indicator relies on information

being reported back to the Register, and since reporting is not mandatory, differences in wait times should be considered with caution.

**Figure 3.14: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by sex and age, 2018**




*Notes*

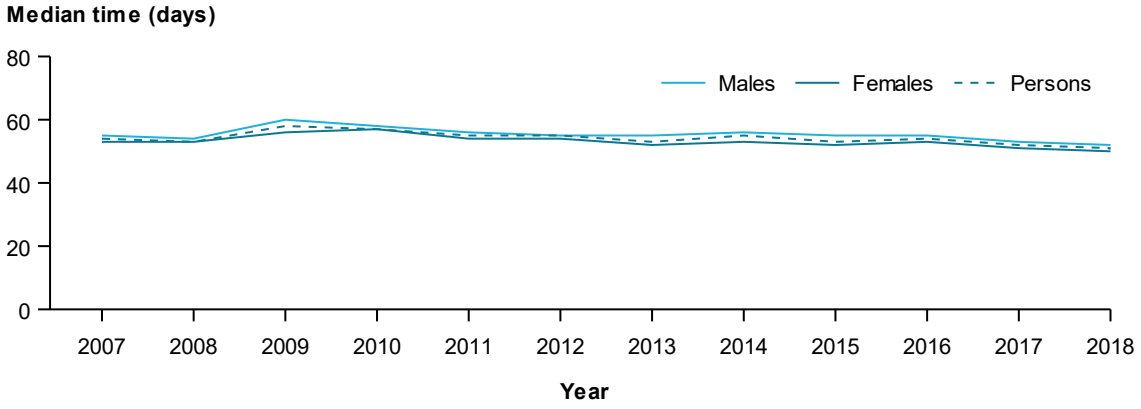
1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* Table A3.18.

**Trend:** Monitoring reports before 2016 did not include this analysis, so trend comparisons with data from these earlier reports cannot be made. To allow trends to be compared over time, the new indicator specifications have been applied retrospectively to earlier years of program data within this report (Figure 3.15; Table A3.22).

Examining the median time between positive screen and diagnostic assessment across all program data to date shows a duration of 54 days in 2007 compared with 51 days in 2018 (Figure 3.15). Differences in form return and varying pathway practices for diagnostic assessment between years may contribute to this outcome.

**Figure 3.15: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by sex, 2007–2018**




*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. For 2018 only, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.
3. Trend data use the performance indicator specifications retrospectively on previous years' data.

*Source:* Table A3.22.

**State and territory:** The median time between a positive screen and diagnostic assessment was highest for people living in the Australian Capital Territory (63 days) and lowest for those living in Victoria (40 days) (Figure 3.16). Note that differences in form return and varied pathway practices for diagnostic assessment may affect the results across jurisdictions.

**Figure 3.16: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by state and territory, 2018**


*Notes*

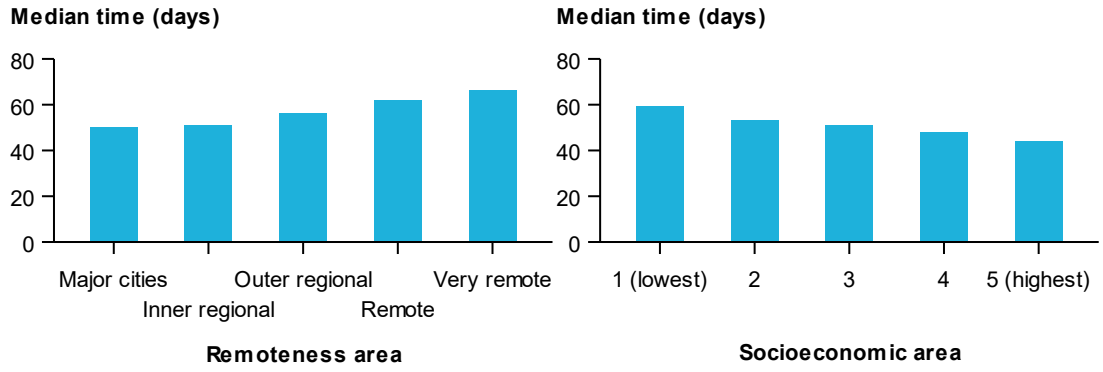
1. Differences across jurisdictions may involve differences in form return and varying pathway practices for diagnostic assessment.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
3. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* Table A3.20.

**Remoteness area:** The median time between a positive screen and assessment was highest for people living in *Very remote* areas (66 days) and lowest for those in *Major cities* (50 days) (Figure 3.17).

**Socioeconomic area:** The median time between a positive screen and assessment was highest for people living in the lowest socioeconomic areas (59 days) and lowest for those in the highest socioeconomic areas (44 days) (Figure 3.17).

**Figure 3.17: Median time (in days) between positive screen and diagnostic assessment of people aged 50–74, by remoteness area and socioeconomic area, 2018**




*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. A participant's location may be divided across multiple remoteness areas proportionally. For PI 4, participants were assigned to their largest proportion remoteness area. See Appendix E for more information.
3. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

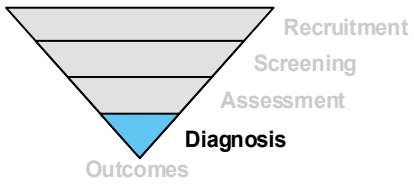
*Source:* Table A3.20.

**Indigenous status:** There was a longer median time between positive screen and assessment for Indigenous Australians (69 days) than for non-Indigenous Australians (51 days) (Table A3.21).

**Language spoken at home:** There was little difference in the median time between a positive screen and assessment for those who spoke a language other than English at home and those who spoke English at home (53 and 51 days, respectively) (Table A3.21).

**Disability status:** Participants reporting severe or profound activity limitation had a longer median time between a positive screen and assessment (65 days) than participants who did not report such limitation (50 days) (Table A3.21).

## 3.5 Diagnosis

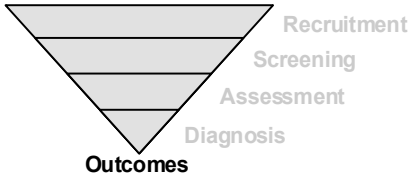



The diagnosis data available were not considered complete enough to allow formal reporting for the following performance indicators:

- PI 5a—Adenoma detection rate
- PI 5b—Positive predictive value of diagnostic assessment for detecting adenoma
- PI 6a—Colorectal cancer detection rate
- PI 6b—Positive predictive value of diagnostic assessment for detecting colorectal cancer. See *Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program* (AIHW 2014a, 2018b) for the most recent accurate PPV of diagnostic assessment for detecting colorectal cancer.

See Chapter 4 for a summary of bowel abnormality detection results using available assessment and diagnosis data.

# 3.6 Outcomes




## PI 9—Adverse events—hospital admission

**Definition:** The rate at which people who had a diagnostic assessment between **1 January 2018 and 31 December 2018** were admitted to hospital within 30 days of their assessment (AIHW 2014b).

**Rationale:** As with any invasive procedure, there is the risk of an adverse event occurring with a colonoscopy. Maximising benefit and minimising harm is an important tenet of population screening. Accordingly, it is important to report known harms from screening when monitoring the program's performance.

**Data quality:** Complete data for this indicator requires linkage with hospital data, which is not currently performed. However, as the Register currently has non-mandatory information on adverse events for participants who had an assessment, this will be used until a more complete data source becomes available. Therefore, there is currently an unknown level of under-reporting for this indicator.

**Guide to interpretation:** This indicator includes all people who underwent a diagnostic assessment in the defined period, not all those invited in the defined period. As per the adverse event form, unplanned hospital admissions after a colonoscopy are recorded only if they occurred within 30 days of the procedure.

**National hospital admission rate:** 1.2 per 10,000 assessments.

The following applies for the 51,099 people who had a diagnostic assessment in 2018:

**Australia-wide:** A total of 6 people were admitted to hospital within 30 days of assessment, giving an overall Australia-wide hospital admission rate after assessment of 1.2 per 10,000 assessments (Table A3.23). Reporting of adverse events after a NBCSP colonoscopy is not mandatory so this rate may be underestimated.

Due to concerns about the level of data completeness, no other disaggregations are presented for this indicator.

## PI 10—Incidence of bowel cancer

**Definition:** The (estimated) incidence rate for bowel cancer per 100,000 estimated resident population aged 50–74 between **1 January 2020 and 31 December 2020** (AIHW 2014b).

**Rationale:** Incidence data provide contextual information about the number of new cases of bowel cancer in the population, which can inform NBCSP planning.

**Data quality:** Each Australian state and territory has legislation requiring mandatory reporting of cancer (excluding basal cell and squamous cell carcinomas of the skin). The ACD contains data on cancers diagnosed up to and including the year 2016—although the 2016 incidence counts for the Northern Territory are estimates as the actual data were not available.

**Guide to interpretation:** The latest estimated incidence results (for 2020) are given where possible. However, estimated 2020 incidence numbers are not available for analysis by state and territory, by remoteness and socioeconomic areas, or by Indigenous status. Hence, for these stratifications, the latest actual data to 2015 (the latest year of complete data for all states and territories) are used.

**National bowel cancer incidence rate:** 99 new cases per 100,000 people aged 50–74.

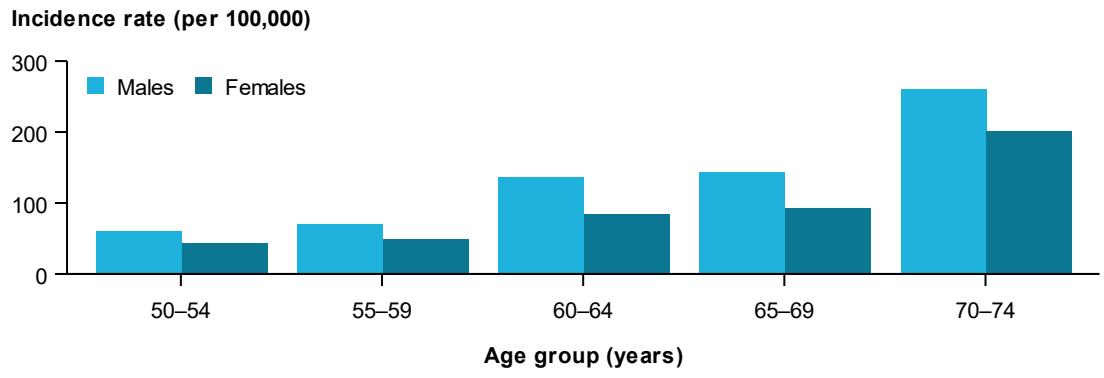
For 2020, the following estimates are made:

**Australia-wide:** A total of 7,227 people aged 50–74 will be diagnosed with bowel cancer, giving an ASR of 99 new cases per 100,000 people (Table A3.24).

**Sex:** Of people aged 50–74, men will be more likely to be diagnosed with bowel cancer than women (117 new cases per 100,000 males compared with 82 new cases per 100,000 females) (Table A3.24).

**Age:** Bowel cancer incidence rates will be higher for older age groups. For people in the target age group, the estimated bowel cancer incidence rate will increase with age, from 51 new cases per 100,000 people aged 50–54 to 230 new cases per 100,000 people aged 70–74 (Figure 3.18).

**Figure 3.18: Incidence rate of bowel cancer for people aged 50–74, by sex and age group, 2020**



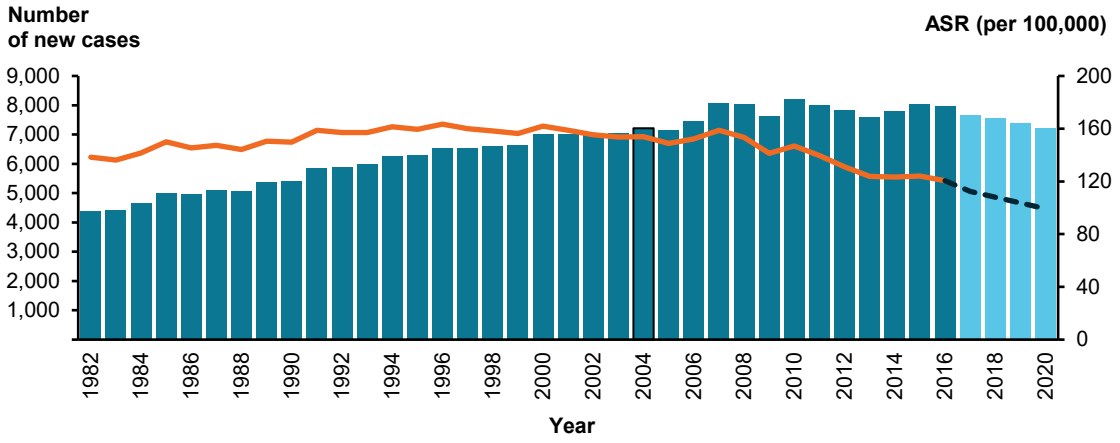

*Notes*

1. The 2020 estimates are based on 2007–2016 incidence data.
2. Age-specific rates are expressed per 100,000 people.
3. Bowel cancer includes ICD-10 codes C18–C20.

*Source:* Table A3.24.

**Trend:** Among people aged 50–74, the number of bowel cancer cases rose from 4,387 in 1982 to an estimated 7,227 in 2020, while the ASR rose for new cases (per 100,000) from 138 in 1982 to a peak of 163 in 1996, where it remained fairly steady until 2007 (Figure 3.19). Since 2007, the ASR for people aged 50–74 has fallen and is expected to reach an ASR of 99 new cases in 2020. The overall effect of the increasing and ageing population is that, while the age-standardised incidence rate gradually fell over time, the actual number of cases continued to rise to a peak of 8,213 cases in 2010. Since 2010, the number of cases diagnosed has been more stable at around 8,000. The introduction of the NBCSP in 2006 might have contributed to increases in the bowel cancer incidence count as prevalent cases of cancer are diagnosed earlier in some cases than they might have been without screening.

**Figure 3.19: Trend in new cases of bowel cancer, people aged 50–74, Australia, 1982–2020**



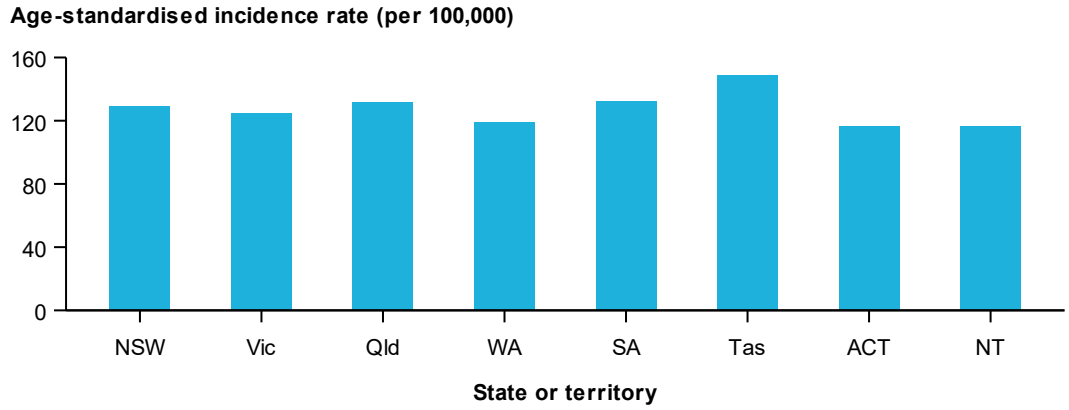

*Notes*

1. Estimated incidence data for 2017–2020 are based on 2007–2016 incidence data. Actual incidence data for 2017–2020 may differ from these estimated incidence data due to current and ongoing program or practice changes.
2. The ACD currently contains data on all cases of cancer diagnosed from 1982 to 2015 for all states and territories; for 2016, it contains data for all jurisdictions except the Northern Territory for which incidence data have been estimated.
3. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
4. Bowel cancer includes ICD-10 codes C18–C20.

*Source:* Table A3.27.

**State and territory:** Between 2011 and 2015, the ASR for new cases of bowel cancer per 100,000 people aged 50–74 was highest in Tasmania (149 new cases of bowel cancer per 100,000 people) and lowest in the Northern Territory (117 new cases per 100,000 people) (Figure 3.20).

**Figure 3.20: Incidence rate of bowel cancer for people aged 50–74, by state and territory, 2011–2015**




*Notes*

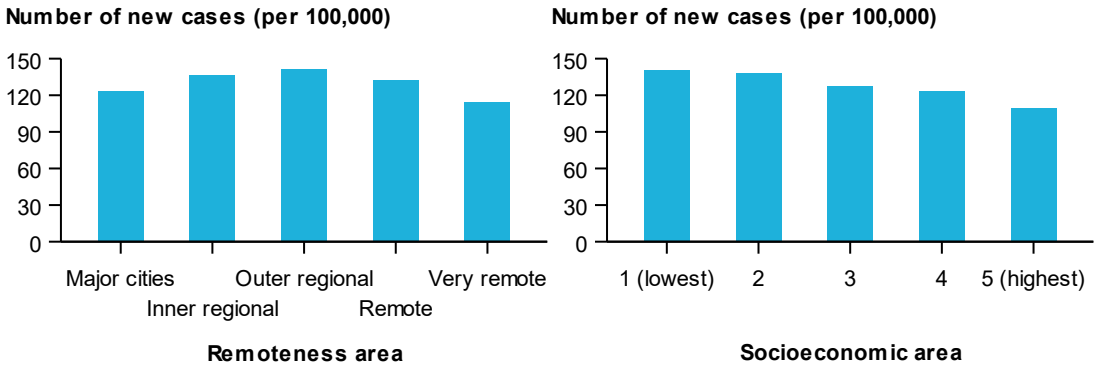
1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. 'State or territory' refers to the state or territory of usual residence.
3. Bowel cancer includes ICD-10 codes C18–C20.

*Source:* Table A3.25.

**Remoteness area:** In 2011–2015, the ASR for new cases of bowel cancer per 100,000 people aged 50–74 was highest for those living in *Outer regional* areas (141 new cases of bowel cancer per 100,000 people) and lowest for people living in *Very remote* areas (115 new cases per 100,000 people) (Figure 3.21).

**Socioeconomic area:** In 2011–2015, the ASR for new cases of bowel cancer per 100,000 people aged 50–74 was highest for those living in the lowest socioeconomic areas (140 new cases of bowel cancer per 100,000 people) and lowest for people living in the highest socioeconomic areas (110 new cases per 100,000 people) (Figure 3.21).

**Figure 3.21: Incidence rate of bowel cancer for people aged 50–74, by remoteness area and socioeconomic area, 2011–2015**




*Notes*

1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Remoteness was classified according to the Australian Statistical Geography Standard (ASGS) Remoteness Areas (see Appendix E).
3. Socioeconomic areas were classified using the ABS Index of Relative Socio-Economic Disadvantage (IRSD) (see Appendix E).
4. The number of people in different remoteness or socioeconomic areas may not sum to the total due to rounding.
5. Bowel cancer includes ICD-10 codes C18–C20.

*Source:* Table A3.25.

**Indigenous Australians:** Reliable national data on the diagnosis of cancer for Indigenous Australians are not available. All state and territory cancer registries collect information on Indigenous status; however, in some jurisdictions, the quality of the data is insufficient for analysis. Information in the ACD on Indigenous status is considered to be of sufficient completeness for reporting for New South Wales, Victoria, Queensland, Western Australia and the Northern Territory.

While the majority (90%) of Australian Indigenous people live in these 5 jurisdictions, the degree to which data for these jurisdictions are representative of data for all Indigenous people is unknown (ABS 2017). For the 5 jurisdictions analysed, 5% (1,685 records) of the ACD had records with unknown Indigenous status for bowel cancer diagnoses in 2011–2015 for people aged 50–74.

The incidence counts and rates for Indigenous and non-Indigenous Australians presented are underestimates due to the relatively large proportion of people whose Indigenous status is not stated, or not available. Also, it is likely that some Indigenous Australians are misclassified as non-Indigenous. Therefore, the estimates presented should be interpreted with caution.

**Box 3.1: Indigenous Australians—incidence and mortality: populations and rates**

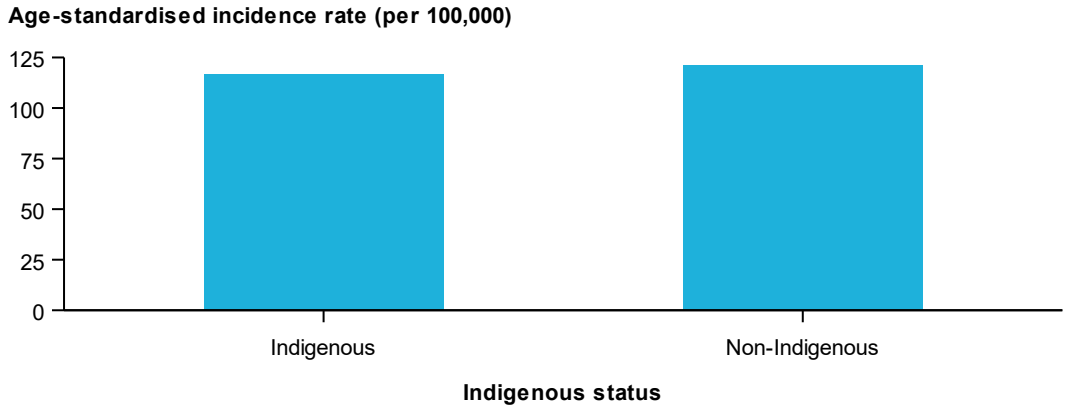
To derive bowel cancer incidence and mortality rates for Indigenous Australians, this report used Indigenous population estimates and projections based on the 2016 Census, which were the most recent estimates available when this report was prepared.

The final estimated resident Aboriginal and Torres Strait Islander population as at 30 June 2016 was 19% larger than the estimated population as at 30 June 2011 (ABS 2018). The ABS notes that the population increase is greater than demographic factors alone can explain. As well, the 2016 estimated population was 7% larger than the 2016 projected population based on the 2011 Census.

The extent of the increase in the Indigenous population estimates between 2011 and 2016 means that any rates calculated with Indigenous population estimates based on the 2016 Census will be lower than those based on the 2011 Census and should not be compared with rates calculated using populations based on previous Censuses.

In the 5 jurisdictions analysed, Indigenous Australians aged 50–74 had a lower ASR for incidence of bowel cancer than non-Indigenous Australians (117 and 121 cases, respectively, per 100,000 people (Figure 3.22).

**Figure 3.22: Incidence rate of bowel cancer, by Indigenous status, 50–74 years, NSW, Vic, Qld, WA and NT, 2011–2015**




*Notes*

1. The rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Bowel cancer includes ICD-10 codes C18–C20.
3. See Box 3.1 for information on rates calculated using the 2016 Census.

*Source:* Table A3.26.

## PI 11—Mortality from bowel cancer

**Definition:** The (estimated) mortality rate for bowel cancer per 100,000 estimated resident population aged 50–74 between **1 January 2020 and 31 December 2020** (AIHW 2014b).

**Rationale:** Mortality data provide contextual information about trends in the level of bowel cancer mortality in the population, which can inform NBCSP planning.

**Data quality:** Cause of Death Unit Record File data are provided to the AIHW by the jurisdictional registrars of Births, Deaths and Marriages and the National Coronial Information System (managed by the Victorian Department of Justice) and include causes of death coded by the ABS. It is suspected that bowel cancer deaths are under-reported due to issues with death certificate coding (see Appendix D).

Monitoring Reports for the National Bowel Cancer Screening Program from 2019 onwards use C18–C20, and C26.0 when reporting deaths from bowel cancer using the NMD. This approach differs from that for versions of the report before 2019 and will result in a greater number of deaths being attributed to bowel cancer (see Box 2.1).

**Guide to interpretation:** The latest estimated mortality results (for 2020) are given where possible. However, analysis by state and territory, by remoteness and socioeconomic areas and by Indigenous status stratifications use the latest actual mortality data (which were to 2018 at the time this report was prepared).

**National bowel cancer mortality rate:** 26 deaths per 100,000 people aged 50–74.

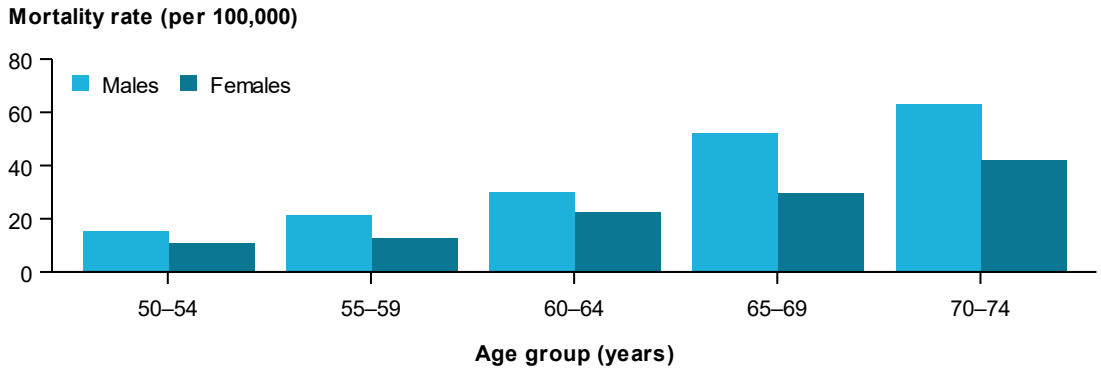
The following estimates are made for 2020:

**Australia-wide:** A total of 1,095 people aged 50–74 will die from bowel cancer, giving an ASR of 26 deaths per 100,000 people (Table A3.28).

**Sex:** Males aged 50–74 will be more likely to die from bowel cancer than females (32 deaths per 100,000 males compared with 21 deaths per 100,000 females) (Figure 3.23).

**Age:** The bowel cancer mortality rate will continue to be higher for older age groups (Table A3.28). For people in the target age range, the estimated bowel cancer mortality rate per 100,000 people will rise from 13 deaths for those aged 50–54 to 52 deaths for those aged 70–74 (Figure 3.23).

**Figure 3.23: Mortality rate from bowel cancer for people aged 50–74, by sex and age, 2020**



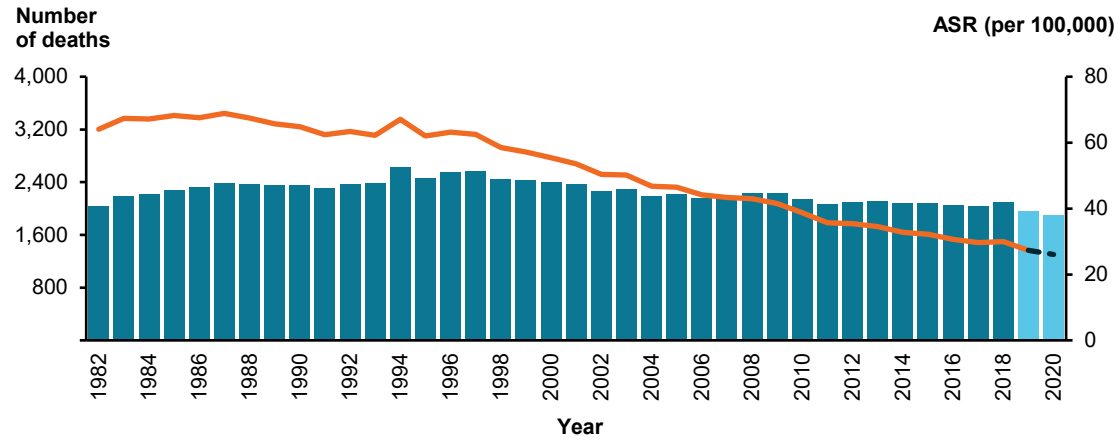

*Notes*

1. The 2020 estimates are based on 2009–2018 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people.

*Source:* Table A3.28.

**Trend:** Between 1982 and 1987, the age-standardised mortality rate per 100,000 people aged 50–74 rose from 64 deaths to 69. Since 1987, the mortality rate from bowel cancer for those aged 50–74 has steadily fallen and is estimated to reach 26 deaths per 100,000 in 2020 (Figure 3.24).

**Figure 3.24: Trend in deaths from bowel cancer, people aged 50–74, Australia, 1982–2020**




*Notes*

1. Estimated mortality data for 2019–2020 are based on 2009–2018 mortality data. Actual mortality data for 2019–2020 may differ from these estimated mortality data due to current and ongoing program or practice changes. See Appendix D for further information.
2. Deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on the revised version; and deaths registered in 2017 and 2018 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.
3. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.

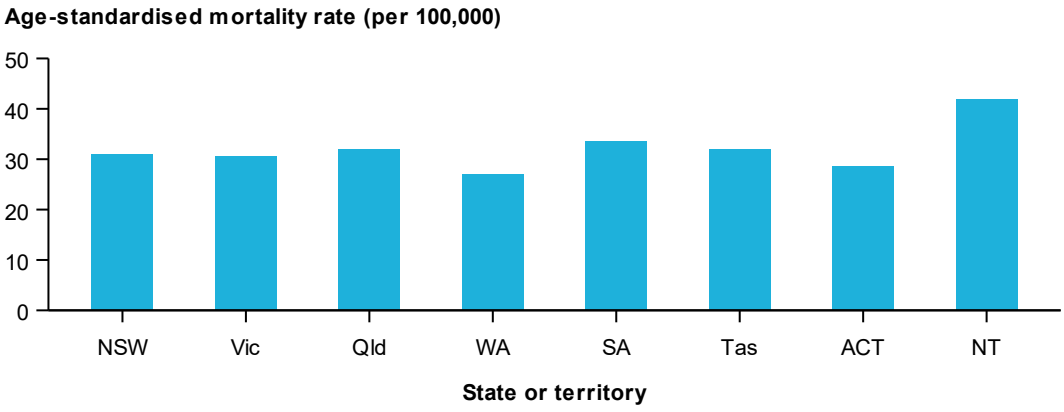
*Source:* Table A3.31.

The NBCSP started in 2006 and, from 2020, roll-out of biennial screening for all eligible Australians in the target age group (50–74) was completed. Once actual mortality data are

available for 2019 onwards, it will be easier to quantify the program's impact on bowel cancer mortality. However, studies conducted by the AIHW of people diagnosed with bowel cancer in 2006–2008 showed that NBCSP invitees (particularly those who participated) diagnosed with bowel cancer had less risk of dying from the disease and were more likely to have less advanced cancers when diagnosed than non-invitees. These findings provide evidence that the NBCSP is contributing to reducing morbidity and mortality from bowel cancer in Australia (AIHW 2014a, 2018a, 2018b).

**State and territory:** In 2014–2018, the ASR per 100,000 people aged 50–74 was highest in the Northern Territory (42 deaths from bowel cancer) and lowest in Western Australia (27 deaths) (Figure 3.25).

**Figure 3.25: Mortality rate from bowel cancer for people aged 50–74, by state and territory, 2014–2018**




*Notes*

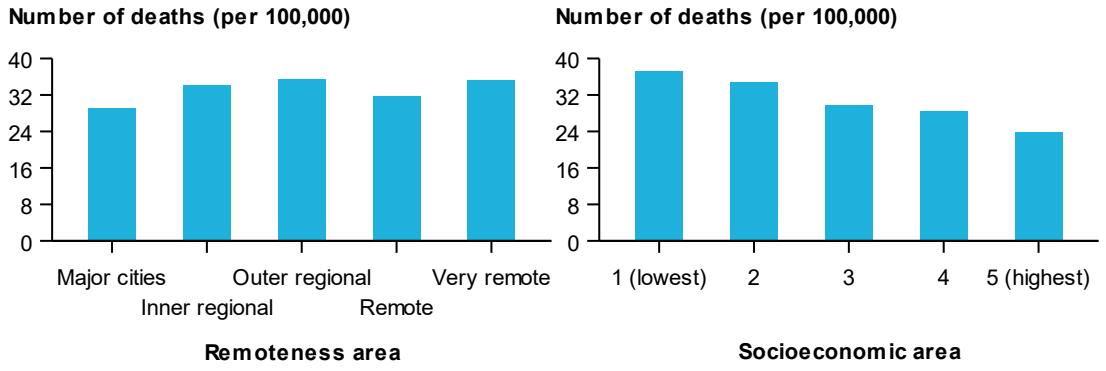
1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on the revised version; and deaths registered in 2017 and 2018 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

*Source:* Table A3.29.

**Remoteness area:** In 2014–2018, the ASR per 100,000 people aged 50–74 was highest for those living in *Outer Regional* and *Very Remote* areas (35 deaths from bowel cancer) and lowest for those living in *Major cities* (29 deaths) (Figure 3.26).

**Socioeconomic area:** In 2014–2018, the ASR per 100,000 people aged 50–74 was highest for those living in the lowest socioeconomic areas (37 deaths from bowel cancer) and lowest for those living in the highest socioeconomic areas (24 deaths) (Figure 3.26).

**Figure 3.26: Mortality rate from bowel cancer for people aged 50–74, by remoteness area and socioeconomic area, 2014–2018**




*Notes*

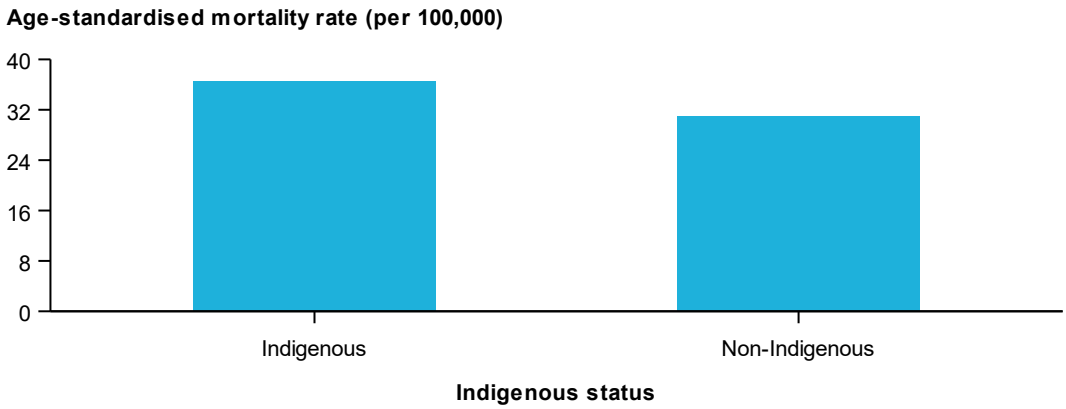
1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on the revised version; and deaths registered in 2017 and 2018 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.
3. Remoteness was classified according to the ASGS Remoteness Areas (see Appendix E).
4. Socioeconomic areas were classified using the ABS IRSD (see Appendix E).

*Source:* Table A3.29.

**Indigenous Australians:** Only mortality data from New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered adequate for reporting by Indigenous status. Other jurisdictions have a small number of Indigenous deaths, and identification of these in their death registration systems is relatively poor, making the data less reliable. Note that these jurisdictions differ from those used to calculate incidence for Indigenous and non-Indigenous Australians. See Box 3.1 for information on Indigenous rates calculated using Indigenous population estimates from the 2016 Census.

In these jurisdictions for the period 2014–2018, Indigenous Australians aged 50–74 had a higher ASR per 100,000 people than non-Indigenous Australians aged 50–74 (37 and 31 deaths, respectively, from bowel cancer) (Figure 3.27).

**Figure 3.27: Mortality rate from bowel cancer, 50–74 years, by Indigenous status, NSW, Qld, WA, SA and NT, 2014–2018**




*Notes*

1. Rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on the revised version; and deaths registered in 2017 and 2018 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.
3. See Box 3.1 for information on rates calculated using the 2016 Census.

*Source:* Table A3.30.

# 4 Bowel abnormality detection results

Diagnosis data were not considered complete enough to allow for formal performance indicator reporting of NBCSP diagnostic outcomes in Chapter 3. Instead, a summary of bowel abnormality detection results for those assessed in 2018 are presented here for information, using the available data.

## 4.1 Bowel abnormality detection using available assessment and histopathology data

Of the 51,099 participants who had a diagnostic assessment, Australia-wide, in 2018:

- 251 (0.5%) had a bowel cancer detected and confirmed by histopathology
- 1,432 (3%) had a suspected bowel cancer still awaiting histopathological diagnosis
- 6,149 (12%) had an adenoma diagnosed by histopathology
- 29,358 (58%) had no adenoma or cancer recorded (includes those with other diagnoses, and those known to have had a colonoscopy only by a Medicare claim, with no results available)
- 13,909 (27%) were still awaiting histopathology outcomes for a polyp biopsy sample (not suspected of being bowel cancer) (Table A4.1)

Rates of bowel cancer and adenoma detection differed by state and territory (Table A4.2). Differences across states and territories may be affected by differences in return rates of histopathology forms and should be interpreted with caution.

# 5 Spotlight on population groups

The NBCSP is monitored in relation to equity of access of relevant services for different population groups, including by geographical location, socioeconomic area, Indigenous status, language spoken at home, and disability. Routine monitoring of rates by various stratifications may reveal emerging trends for further investigation. This chapter provides a summary of performance indicators for 5 population subgroups. It should be noted that there is large overlap of the Indigenous population with 2 of the other population subgroups presented here, due to higher proportions of Indigenous Australian participants living in the lowest socioeconomic areas and in *Very remote* areas.

## 5.1 Low socioeconomic areas

This section compares performance indicator results between the highest and lowest socioeconomic areas only. However, as noted in Chapter 3, across all performance indicators, there is a general gradient of increasingly poorer outcomes across the 5 socioeconomic groupings as socioeconomic disadvantage increases.

Australians living in the lowest socioeconomic areas had a lower participation rate than those living in the highest socioeconomic areas. Further, those that screened experienced higher screening positivity rates than those living in the highest socioeconomic areas, yet had a lower follow-up diagnostic assessment rate—and a longer median time between a positive screen and an assessment.

Australians living in the lowest socioeconomic areas had higher age-standardised bowel cancer incidence and mortality rates than those living in the highest socioeconomic areas (Table 5.1).

## Table 5.1: Summary of performance indicators for lowest and highest socioeconomic groups

| Indicator | | Summary of performance indicators for the lowest socioeconomic areas compared with the highest | Lowest socioeconomic areas | Highest socioeconomic areas |
|---|---|---|---|---|
| PI 1 | Participation rate | Lower participation rate | 40% | 45% |
| PI 2 | Screening positivity rate | Higher screening positivity rate | 8% | 5% |
| PI 3[(a)] | Diagnostic assessment rate | Lower diagnostic assessment follow-up rate | 59% | 74% |
| PI 4[(a)] | Time between positive screen and diagnostic assessment | Longer median time | 59 days | 44 days |
| PI 9 | Adverse events—hospital admission | Comparison not published | n.p. | n.p. |
| PI 10 | Bowel cancer incidence rate | Higher age-standardised incidence rate | 140 per 100,000 | 110 per 100,000 |
| PI 11 | Bowel cancer mortality rate | Higher age-standardised mortality rate | 37 per 100,000 | 24 per 100,000 |

(a) Due to the NBCSP Register transition in mid-November 2019, data are reported as at 31 October; hence, for this report, these performance indicators have only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. For further information see Box 1.

*Notes*

1. The participation indicator PI 1 is reported against the period 2017–2018 with follow-up to June 2019. The screening indicator PI 2 is reported against the period 2018. The assessment indicators PIs 3 and 4 are reported against the period 2018 with follow-up to 31 October 2019. Incidence is reported for 2011–2015. Mortality is reported for 2014–2018.
2. Indicators PI 3–9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.

*Sources:* AIHW ACD 2016; AIHW NMD; NBCSP Register as at 31 October 2019.

## 5.2 Very remote

This section compares performance indicator results between *Major cities* and *Very remote* areas only. However, as noted in Chapter 3, both *Remote* and *Very remote* areas had poorer participation and higher positivity rates than all other areas.

Australians living in *Very remote* areas had a lower participation rate than those living in *Major cities*. They also experienced higher screening positivity rates than Australians living in *Major cities*, yet had a lower follow-up diagnostic assessment rate and a longer median time between a positive screen and an assessment.

Australians living in *Very remote* areas had a lower age-standardised bowel cancer incidence rate and a higher age-standardised mortality rate than those living in *Major cities* (Table 5.2).

**Table 5.2: Summary of performance indicators for Very remote and Major cities areas**

| Indicator | | Summary of performance indicators for Very remote areas compared with Major cities | Very remote | Major cities |
|---|---|---|---|---|
| PI 1 | Participation rate | Lower participation rate | 27% | 42% |
| PI 2 | Screening positivity rate | Higher screening positivity rate | 8% | 6% |
| PI 3[(a)] | Diagnostic assessment rate | Lower diagnostic assessment follow-up rate | 43% | 70% |
| PI 4[(a)] | Time between positive screen and diagnostic assessment | Longer median time | 66 days | 50 days |
| PI 9 | Adverse events—hospital admission | Comparison not published | n.p. | n.p. |
| PI 10 | Bowel cancer incidence rate | Lower age-standardised incidence rate | 115 per 100,000 | 123 per 100,000 |
| PI 11 | Bowel cancer mortality rate | Higher age-standardised mortality rate | 35 per 100,000 | 29 per 100,000 |

(a) Due to the NBCSP Register transition in mid-November 2019, data are reported as at 31 October; hence, for this report, these performance indicators have only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. For further information see Box 1.

*Notes*

1. The participation indicator PI 1 is reported against the period 2017–2018 with follow-up to June 2019. The screening indicator PI 2 is reported against the period 2018. The assessment indicators PIs 3 and 4 are reported against the period 2018 with follow-up to 31 October 2019. Incidence is reported for 2011–2015. Mortality is reported for 2014–2018.
2. Indicators 3–9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.

*Sources:* AIHW ACD 2016; AIHW NMD; NBCSP Register as at 31 October 2019.

# 5.3 Indigenous Australians

Indigenous Australians had lower participation rates than non-Indigenous Australians. They also experienced higher screening positivity rates, yet had a lower follow-up diagnostic assessment rate and a longer median time between a positive screen and an assessment. Indigenous Australians had lower age-standardised bowel cancer incidence and higher mortality rates than non-Indigenous Australians (Table 5.3).

Reasons for differences in screening outcomes between Indigenous and non-Indigenous Australians are not known; however, higher proportions of Indigenous Australians living in *Remote* and *Very remote* locations and lower socioeconomic areas, where access to relevant services can be an issue, may be contributing factors.

**Table 5.3: Summary of performance indicators for Indigenous and non-Indigenous Australians**

| Indicator | | Summary of performance indicators for Indigenous Australians compared with non-Indigenous Australians | Indigenous | Non-Indigenous |
|---|---|---|---|---|
| PI 1 | Participation rate[(a)] | Lower participation rate | 22.9% | 44.7% |
| PI 2 | Screening positivity rate | Higher screening positivity rate | 10% | 7% |
| PI 3[(b)] | Diagnostic assessment rate | Lower diagnostic assessment follow-up rate | 48% | 66% |
| PI 4[(b)] | Time between positive screen and diagnostic assessment | Longer median time | 69 days | 51 days |
| PI 9 | Adverse events—hospital admission | Comparison not published | n.p. | n.p. |
| PI 10 | Bowel cancer incidence rate[(c)(d)] | Lower age-standardised incidence rate[(d)] | 117 per 100,000 | 121 per 100,000 |
| PI 11 | Bowel cancer mortality rate[(d)(e)] | Higher age-standardised mortality rate | 37 per 100,000 | 31 per 100,000 |

(a) Participation rates by Indigenous status were estimated using 2016 Census proportions (see Appendix F for more information).

(b) Due to the NBCSP Register transition in mid-November 2019, data are reported as at 31 October; hence, for this report, these performance indicators have only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. For further information see Box 1.

(c) Includes only New South Wales, Victoria, Queensland, Western Australia and the Northern Territory.

(d) These rates were calculated using Indigenous population based on the 2016 Census and should not be compared with rates calculated using populations based on previous Censuses. See Box 3.1 for more information.

(e) Includes only New South Wales, Queensland, Western Australia, South Australia and the Northern Territory.

*Notes*

1. The participation indicator PI 1 is reported against the period 2017–2018 with follow-up to June 2018. The screening indicator PI 2 is reported against the period 2018. The assessment indicators PIs 3 and 4 are reported against the period 2018 with follow-up to 31 October 2019. Incidence is reported for 2011–2015. Mortality is reported for 2014–2018.
2. Indicators 3–9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.
4. The incidence counts and rates for Indigenous and non-Indigenous Australians presented are underestimates due to the relatively large proportion of people whose Indigenous status is not stated. Also, it is likely that some Indigenous Australians are misclassified as non-Indigenous. Therefore, the estimates presented should be interpreted with caution.

*Sources:* 2016 Census data; AIHW ACD 2016; AIHW NMD; NBCSP Register as at 31 October 2019.

# 5.4 Language spoken at home

Australians who spoke a language other than English at home had a lower participation rate than those who spoke English. They experienced similar screening positivity rates, yet had a lower follow-up diagnostic assessment rate and longer median time between a positive screen and an assessment (Table 5.4).

**Table 5.4: Summary of performance indicators for English speakers and those who spoke a language other than English (LOTE) at home**

| Indicator | | Summary of performance indicators for those who spoke a language other than English at home compared with English speakers | LOTE | English |
|---|---|---|---|---|
| PI 1 | Participation rate[(a)] | Lower participation rate | 23.8–32.8% | 42.6–46.1% |
| PI 2 | Screening positivity rate | Higher screening positivity rate | 7% | 7% |
| PI 3[(b)] | Diagnostic assessment rate | Lower diagnostic assessment follow-up rate | 62% | 66% |
| PI 4[(b)] | Time between positive screen and diagnostic assessment | Longer median time | 53 days | 51 days |
| PI 9 | Adverse events—hospital admission | Comparison not published | n.p. | n.p. |
| PI 10 | Bowel cancer incidence rate[(c)] | Comparison not available | n.a. | n.a. |
| PI 11 | Bowel cancer mortality rate[(c)] | Comparison not available | n.a. | n.a. |

(a) Participation rates by language spoken at home were estimated using 2016 Census proportions (see Table A5.1 and Appendix F for more information).

(b) Due to the NBCSP Register transition in mid-November 2019, data are reported as at 31 October; hence, for this report, these performance indicators have only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. For further information see Box 1.

(c) Data for this indicator are not available.

*Notes*

1. The participation indicator PI 1 is reported against the period 2017–2018 with follow-up to June 2019. The screening indicator PI 2 is reported against the period 2018. The assessment indicators PIs 3 and 4 are reported against the period 2018 with follow-up to 31 October 2019. Incidence and mortality data are not currently available for reporting by language spoken at home.
2. Indicators 3–9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.

*Sources:* 2016 Census data; AIHW ACD 2016; AIHW NMD; NBCSP Register as at 31 October 2019.

# 5.5 Disability status

Australians with severe or profound disability participated at a lower rate than those without such limitation. They also experienced higher screening positivity rates, yet had a lower follow-up diagnostic assessment rate, a longer median time between a positive screen and an assessment (Table 5.5).

**Table 5.5: Summary of performance indicators for those with severe or profound activity limitation and those with no severe or profound activity limitation**

| Indicator | | Summary of performance indicators for those with severe or profound disability compared with those without severe or profound disability | Severe or profound activity limitation | No severe or profound activity limitation |
|---|---|---|---|---|
| PI 1 | Participation rate[(a)] | Lower participation rate | 35.7% | 44.7% |
| PI 2 | Screening positivity rate | Higher screening positivity rate | 10% | 6% |
| PI 3[(b)] | Diagnostic assessment rate | Lower diagnostic assessment follow-up rate | 51% | 67% |
| PI 4[(b)] | Time between positive screen and diagnostic assessment | Longer median time | 65 days | 50 days |
| PI 9 | Adverse events—hospital admission | Comparison not published | n.p. | n.p. |
| PI 10 | Bowel cancer incidence rate[(c)] | Comparison not available | n.a. | n.a. |
| PI 11 | Bowel cancer mortality rate[(c)] | Comparison not available | n.a. | n.a. |

(a) Participation rates by language spoken at home were estimated using 2016 Census proportions (see Table A5.2 and Appendix F for more information).

(b) Due to the NBCSP Register transition in mid-November 2019, data are reported as at 31 October; hence, for this report, these performance indicators have only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. For further information see Box 1.

(c) Data for this indicator are not available.

*Notes*

1. The participation indicator PI 1 is reported against the period 2017–2017 with follow-up to June 2019. The screening indicator PI 2 is reported against the period 2018. The assessment indicators PIs 3 and 4 are reported against the period 2018 with follow-up to 31 October 2019. Incidence and mortality data are not currently available for reporting by disability status.
2. Indicators 3–9 rely on information being reported back to the Register. As NBCSP forms are not mandatory, there may be incomplete form return and incomplete data.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability.

*Sources:* 2016 Census data; AIHW ACD 2016; AIHW NMD; NBCSP Register as at 31 October 2019.

# Appendix A: Data tables

## Additional table for Chapter 1

**Table A1.1: Government funding for cancer screening programs, 2017–18 ($ million)**

| Screening program | Australian Government | State and territory governments | Total government |
|---|---|---|---|
| BreastScreen Australia[a] | 3.3[b] | 261.5 | 264.8 |
| National Cervical Screening Program[c] | 60.2 | 34.6 | 94.8 |
| *MBS items for cervical screening* | *45.8* | | |
| *PIP incentive payments for cervical screening* | *4.2* | | |
| *Assist Victoria in funding the Victorian Cytology Service* | *10.2* | | |
| National Bowel Cancer Screening Program[d][e] | 75.3 | 0.0 | 75.3 |
| **Total** | **138.8** | **296.1** | **434.9** |

(a) Excludes MBS items for breast cancer screening that occurs outside BreastScreen Australia.

(b) For the BreastScreen Australia program, the Australian Government figure includes only direct expenditure on the program by the government, and not the funding provided to the states and territories through the National Health Reform Agreement.

(c) Excludes the proportion of the costs associated with general practitioner, specialist and nurse attendances that would have been for Pap smears.

(d) Excludes MBS items for bowel screening that occurs outside the NBCSP.

(e) Includes payments from the Australian Government to the states and territories for the NBCSP.

*Sources:* AIHW Health Expenditure database; Services Australia Medicare statistics.

# Additional tables for Chapter 2

**Table A2.1: Five-year relative survival from bowel cancer, by age group and sex, Australia, 2012–2016**

| | Males | Females | Persons |
|---|---|---|---|
| **Age group (years)** | **5-year relative survival (%)** | **5-year relative survival (%)** | **5-year relative survival (%)** |
| 0–4 | n.p. | n.p. | n.p. |
| 5–9 | n.p. | n.p. | n.p. |
| 10–14 | n.p. | 100.0 | 100.0 |
| 15–19 | 98.5 | 96.7 | 97.4 |
| 20–24 | 84.9 | 92.2 | 89.2 |
| 25–29 | 74.8 | 80.1 | 77.7 |
| 30–34 | 73.3 | 76.0 | 74.8 |
| 35–39 | 78.5 | 77.8 | 78.1 |
| 40–44 | 72.6 | 72.6 | 72.6 |
| 45–49 | 71.6 | 73.7 | 72.6 |
| 50–54 | 75.0 | 78.1 | 76.4 |
| 55–59 | 74.9 | 77.5 | 76.0 |
| 60–64 | 72.2 | 74.9 | 73.3 |
| 65–69 | 74.2 | 76.3 | 75.0 |
| 70–74 | 70.3 | 72.9 | 71.4 |
| 75–79 | 67.1 | 68.7 | 67.8 |
| 80–84 | 63.9 | 64.3 | 64.2 |
| 85+ | 54.3 | 56.4 | 55.6 |
| *50–74* | *72.9* | *75.5* | *73.9* |
| **All ages** | **69.6** | **70.6** | **70.1** |

*Source:* AIHW ACD 2016.

**Table A2.2: Trend in 5-year relative survival form bowel cancer, people aged 50–74, Australia, 1987–1991 to 2012–2016**

| Year | 5-year relative survival (%) |
|---|---|
| 1987–1991 | 53.8 |
| 1992–1996 | 58.1 |
| 1997–2001 | 62.0 |
| 2002–2006 | 67.1 |
| 2007–2011 | 70.8 |
| 2012–2016 | 73.9 |

*Source:* AIHW ACD 2016.

**Table A2.3: Relative survival at diagnosis and 5-year conditional relative survival from bowel cancer, people aged 50–74, Australia, 2012–2016**

| | Relative survival | Conditional survival | |
|---|---|---|---|
| Years after diagnosis | Relative survival (%) | Years already survived | 5-year conditional relative survival (%) |
| 1 | 90.8 | . . | . . |
| 2 | 84.4 | . . | . . |
| 3 | 79.7 | . . | . . |
| 4 | 76.2 | . . | . . |
| 5 | 73.9 | 0 | 73.9 |
| 6 | 72.0 | 1 | 79.4 |
| 7 | 70.6 | 2 | 83.7 |
| 8 | 69.5 | 3 | 87.2 |
| 9 | 68.4 | 4 | 89.7 |
| 10 | 67.6 | 5 | 91.5 |
| 11 | 67.1 | 6 | 93.1 |
| 12 | 66.5 | 7 | 94.2 |
| 13 | 66.1 | 8 | 95.1 |
| 14 | 65.7 | 9 | 96.1 |
| 15 | 65.4 | 10 | 96.7 |
| 16 | 65.0 | 11 | 96.9 |
| 17 | 64.5 | 12 | 97.0 |
| 18 | 64.3 | 13 | 97.3 |
| 19 | 64.1 | 14 | 97.6 |
| 20 | 63.9 | 15 | 97.7 |

*Source:* AIHW ACD 2016.

**Table A2.4: Change in fatal burden—years of life lost (YLL) from bowel cancer, age-specific rate (per 1,000 people), 2003, 2011 and 2015**

| | Year | | |
|---|---|---|---|
| **Age group (years)** | **2003** | **2011** | **2015** |
| 30–34 | 0.7 | 0.5 | 1.1 |
| 35–39 | 0.8 | 1.1 | 1.1 |
| 40–44 | 2.1 | 1.6 | 1.9 |
| 45–49 | 3.9 | 2.8 | 3.2 |
| 50–54 | 5.6 | 4.0 | 5.2 |
| 55–59 | 9.0 | 6.3 | 5.8 |
| 60–64 | 14.2 | 9.8 | 8.5 |
| 65–69 | 17.2 | 12.5 | 11.0 |
| 70–74 | 20.4 | 15.2 | 12.4 |
| 75–79 | 22.0 | 18.9 | 17.0 |
| 80–84 | 21.2 | 18.9 | 18.2 |
| 85–89 | 19.4 | 18.0 | 18.1 |
| 90–94 | 17.2 | 16.5 | 15.7 |
| 95–99 | 12.3 | 12.2 | 13.8 |
| 100+ | 4.9 | 6.8 | 9.3 |

*Source*: AIHW Australian Burden of Disease database (AIHW 2019b).

# Additional tables for Chapter 3

## Recruitment

**Table A3.1: Screening invitations including opt-out and deferred status of people aged 50–74, by sex and age group, Australia, 2017–2018**

| Sex | Age (years) | Invitations issued to eligible population (N) | Persons deferred (N) | Persons opted out (N) | Persons deferred and opted out (N) | Persons deferred and opted out (%) | Invitations (minus opted out and deferred) (N) |
|---|---|---|---|---|---|---|---|
| Males | 50–54 | 627,323 | 1,420 | 2,792 | 4,212 | 0.7 | 623,111 |
| | 55–59 | 443,773 | 1,311 | 2,145 | 3,456 | 0.8 | 440,317 |
| | 60–64 | 632,566 | 2,685 | 4,330 | 7,015 | 1.1 | 625,551 |
| | 65–69 | 329,995 | 2,238 | 3,930 | 6,168 | 1.9 | 323,827 |
| | 70–74 | 522,654 | 4,204 | 8,620 | 12,824 | 2.5 | 509,830 |
| | *50–74* | *2,556,311* | *11,858* | *21,817* | *33,675* | *1.3* | *2,522,636* |
| Females | 50–54 | 631,421 | 2,025 | 3,568 | 5,593 | 0.9 | 625,828 |
| | 55–59 | 446,601 | 1,770 | 2,665 | 4,435 | 1.0 | 442,166 |
| | 60–64 | 645,982 | 3,653 | 4,978 | 8,631 | 1.3 | 637,351 |
| | 65–69 | 337,809 | 2,871 | 4,465 | 7,336 | 2.2 | 330,473 |
| | 70–74 | 530,800 | 4,824 | 9,450 | 14,274 | 2.7 | 516,526 |
| | *50–74* | *2,592,613* | *15,143* | *25,126* | *40,269* | *1.6* | *2,552,344* |
| Persons | 50–54 | 1,258,744 | 3,445 | 6,360 | 9,805 | 0.8 | 1,248,939 |
| | 55–59 | 890,374 | 3,081 | 4,810 | 7,891 | 0.9 | 882,483 |
| | 60–64 | 1,278,548 | 6,338 | 9,308 | 15,646 | 1.2 | 1,262,902 |
| | 65–69 | 667,804 | 5,109 | 8,395 | 13,504 | 2.0 | 654,300 |
| | 70–74 | 1,053,454 | 9,028 | 18,070 | 27,098 | 2.6 | 1,026,356 |
| | **50–74** | **5,148,924** | **27,001** | **46,943** | **73,944** | **1.4** | **5,074,980** |

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.2: Participation of people aged 50–74, by sex and age, Australia, 2017–2018**

| Sex | Age (years) | Returned completed screening test (N) | Invitations (minus opted out and deferred) (N) | Participation (%) |
|---|---|---|---|---|
| Males | 50–54 | 185,834 | 623,111 | 29.8 |
| | 55–59 | 153,255 | 440,317 | 34.8 |
| | 60–64 | 256,354 | 625,551 | 41.0 |
| | 65–69 | 154,287 | 323,827 | 47.6 |
| | 70–74 | 265,897 | 509,830 | 52.2 |
| | *50–74* | *1,015,627* | *2,522,636* | *40.3* |
| Females | 50–54 | 212,836 | 625,828 | 34.0 |
| | 55–59 | 176,294 | 442,166 | 39.9 |
| | 60–64 | 296,263 | 637,351 | 46.5 |
| | 65–69 | 170,391 | 330,473 | 51.6 |
| | 70–74 | 279,371 | 516,526 | 54.1 |
| | *50–74* | *1,135,155* | *2,552,344* | *44.5* |
| Persons | 50–54 | 398,670 | 1,248,939 | 31.9 |
| | 55–59 | 329,549 | 882,483 | 37.3 |
| | 60–64 | 552,617 | 1,262,902 | 43.8 |
| | 65–69 | 324,678 | 654,300 | 49.6 |
| | 70–74 | 545,268 | 1,026,356 | 53.1 |
| | **50–74** | **2,150,782** | **5,074,980** | **42.4** |

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.3: Participation of people aged 50–74, by invitation round, Australia, 2017–2018**

| Round | Screened in previous round | Age (years) | Returned completed screening test (N) | Invitations (minus opted out and deferred) (N) | Participation (%) |
|---|---|---|---|---|---|
| First | n.a. | 50–54 | 197,471 | 650,602 | 30.4 |
| | | 55–59 | 3,570 | 11,726 | 30.4 |
| | | 60–64 | 6,563 | 18,266 | 35.9 |
| | | 65–69 | 2,092 | 5,447 | 38.4 |
| | | 70–74 | 3,694 | 10,032 | 36.8 |
| | | *50–74* | *213,390* | *696,073* | *30.7* |
| Subsequent | No | 50–54 | 77,058 | 423,824 | 18.2 |
| | | 55–59 | 103,752 | 576,116 | 18.0 |
| | | 60–64 | 154,386 | 750,909 | 20.6 |
| | | 65–69 | 85,514 | 363,952 | 23.5 |
| | | 70–74 | 125,328 | 514,309 | 24.4 |
| | | *50–74* | *546,038* | *2,629,110* | *20.8* |
| | Yes | 50–54 | 124,141 | 174,513 | 71.1 |
| | | 55–59 | 222,227 | 294,641 | 75.4 |
| | | 60–64 | 391,668 | 493,727 | 79.3 |
| | | 65–69 | 237,072 | 284,901 | 83.2 |
| | | 70–74 | 416,246 | 502,015 | 82.9 |
| | | *50–74* | *1,391,354* | *1,749,797* | *79.5* |
| | All | 50–54 | 201,199 | 598,337 | 33.6 |
| | | 55–59 | 325,979 | 870,757 | 37.4 |
| | | 60–64 | 546,054 | 1,244,636 | 43.9 |
| | | 65–69 | 322,586 | 648,853 | 49.7 |
| | | 70–74 | 541,574 | 1,016,324 | 53.3 |
| | | *50–74* | *1,937,392* | *4,378,907* | *44.2* |
| All rounds | No[(a)] | 50–54 | 274,529 | 1,074,426 | 25.6 |
| | | 55–59 | 107,322 | 587,842 | 18.3 |
| | | 60–64 | 160,949 | 769,175 | 20.9 |
| | | 65–69 | 87,606 | 369,399 | 23.7 |
| | | 70–74 | 129,022 | 524,341 | 24.6 |
| | | *50–74* | *759,428* | *3,325,183* | *22.8* |
| | Yes | 50–54 | 124,141 | 174,513 | 71.1 |
| | | 55–59 | 222,227 | 294,641 | 75.4 |
| | | 60–64 | 391,668 | 493,727 | 79.3 |
| | | 65–69 | 237,072 | 284,901 | 83.2 |
| | | 70–74 | 416,246 | 502,015 | 82.9 |
| | | *50–74* | *1,391,354* | *1,749,797* | *79.5* |
| | All | 50–54 | 398,670 | 1,248,939 | 31.9 |
| | | 55–59 | 329,549 | 882,483 | 37.3 |
| | | 60–64 | 552,617 | 1,262,902 | 43.8 |
| | | 65–69 | 324,678 | 654,300 | 49.6 |
| | | 70–74 | 545,268 | 1,026,356 | 53.1 |
| | | **50–74** | **2,150,782** | **5,074,980** | **42.4** |

(a) Includes all first-round invitations.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.4: Participation of people aged 50–74, by state and territory, remoteness area, and socioeconomic area, 2017–2018**

| Area | | Returned completed screening test (N) | Invitations (minus opted out and deferred) (N) | Participation rate (%) |
|---|---|---|---|---|
| State and territory | NSW | 648,809 | 1,648,837 | 39.3 |
| | Vic | 571,019 | 1,263,423 | 45.2 |
| | Qld | 413,741 | 1,013,186 | 40.8 |
| | WA | 228,782 | 521,887 | 43.8 |
| | SA | 181,382 | 381,881 | 47.5 |
| | Tas | 59,784 | 125,073 | 47.8 |
| | ACT | 34,824 | 77,793 | 44.8 |
| | NT | 12,441 | 42,900 | 29.0 |
| Remoteness area[(a)] | Major cities | 1,422,871 | 3,410,073 | 41.7 |
| | Inner regional | 472,689 | 1,040,690 | 45.4 |
| | Outer regional | 200,519 | 472,372 | 42.4 |
| | Remote | 20,909 | 56,130 | 37.3 |
| | Very remote | 7,607 | 28,105 | 27.1 |
| | Unknown | 26,185 | 67,608 | 38.7 |
| Socioeconomic area[(a)] | 1 (lowest) | 408,223 | 1,030,287 | 39.6 |
| | 2 | 439,932 | 1,039,860 | 42.3 |
| | 3 | 403,889 | 962,696 | 42.0 |
| | 4 | 424,293 | 969,189 | 43.8 |
| | 5 (highest) | 447,877 | 1,004,338 | 44.6 |
| | Unknown | 26,568 | 68,610 | 38.7 |
| **Total** | | **2,150,782** | **5,074,980** | **42.4** |

(a) Total may not equal the sum of individual remoteness or socioeconomic areas due to rounding.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.5: Participation rate (%) of people aged 50–74, by sex and age, Australia, 2007–2008 to 2017–2018**

| Sex | Age group (years) | 2007–2008 | 2008–2009 | 2009–2010 | 2010–2011 | 2011–2012 | 2012–2013 | 2013–2014 | 2014–2015 | 2015–2016 | 2016–2017 | 2017–2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Males | 50–54 | 31.3 | 34.1 | 32.2 | 29.9 | 28 | 26.9 | 26.5 | 26.4 | 26.2 | 28.0 | 29.8 |
| | 55–59 | 37.5 | 38.3 | 36.8 | 34.4 | 32.3 | 32.6 | 33.9 | 34.1 | 33.0 | 33.1 | 34.8 |
| | 60–64 | . . | . . | . . | . . | . . | . . | 40.6 | 40.2 | 40.1 | 40.6 | 41.0 |
| | 65–69 | 49.0 | 50.6 | 49.4 | 47.0 | 45.5 | 43.5 | 41.7 | 41.1 | 42.0 | 45.5 | 47.6 |
| | 70–74 | . . | . . | . . | . . | . . | . . | 48.9 | 51.8 | 51.8 | 51.8 | 52.2 |
| | *50–74* | *40.0* | *39.8* | *37.9* | *35.7* | *34.1* | *33.4* | *34.7* | *36.5* | *39.0* | *39.4* | *40.3* |
| Females | 50–54 | 38.0 | 40.8 | 37.4 | 34.7 | 32.6 | 31.2 | 30.8 | 30.7 | 30.0 | 31.7 | 34.0 |
| | 55–59 | 47.1 | 47.6 | 44.7 | 41.9 | 39.4 | 38.9 | 39.7 | 39.5 | 38.0 | 37.8 | 39.9 |
| | 60–64 | . . | . . | . . | . . | . . | . . | 47.2 | 46.2 | 45.2 | 45.6 | 46.5 |
| | 65–69 | 56.2 | 57.6 | 55.4 | 52.9 | 51.4 | 49.2 | 46.8 | 45.8 | 46.4 | 49.3 | 51.6 |
| | 70–74 | . . | . . | . . | . . | . . | . . | 44.1 | 53.1 | 53.2 | 53.4 | 54.1 |
| | *50–74* | *48.2* | *47.5* | *44.2* | *41.6* | *39.9* | *38.7* | *40.1* | *41.3* | *42.9* | *43.2* | *44.5* |
| Persons | 50–54 | 34.7 | 37.4 | 34.8 | 32.3 | 30.3 | 29.0 | 28.6 | 28.5 | 28.1 | 29.8 | 31.9 |
| | 55–59 | 42.2 | 42.9 | 40.7 | 38.1 | 35.8 | 35.8 | 36.8 | 36.8 | 35.5 | 35.5 | 37.3 |
| | 60–64 | . . | . . | . . | . . | . . | . . | 43.9 | 43.2 | 42.7 | 43.1 | 43.8 |
| | 65–69 | 52.6 | 54.1 | 52.3 | 49.9 | 48.4 | 46.3 | 44.2 | 43.5 | 44.2 | 47.4 | 49.6 |
| | 70–74 | . . | . . | . . | . . | . . | . . | 46.6 | 52.5 | 52.5 | 52.6 | 53.1 |
| | **50–74** | **44.0** | **43.6** | **41.0** | **38.6** | **37.0** | **36.1** | **37.4** | **38.9** | **40.9** | **41.3** | **42.4** |

*Note:* Data presented are for rolling 2-year participation periods.

*Source:* NBCSP Register as at 31 October 2019.

# Screening

### Table A3.6: iFOBT positivity rate of people aged 50–74, by sex and age, 2018

| Sex | Age at screen (years) | Positive result (N) | Valid screening test (N) | Screening positivity (%) |
|---|---|---|---|---|
| Males | 50–54 | 5,954 | 96,204 | 6.2 |
| | 55–59 | 4,448 | 69,283 | 6.4 |
| | 60–64 | 10,900 | 148,969 | 7.3 |
| | 65–69 | 8,661 | 101,629 | 8.5 |
| | 70–74 | 13,627 | 139,091 | 9.8 |
| | *50–74* | *43,590* | *555,176* | *7.9* |
| Females | 50–54 | 5,172 | 111,540 | 4.6 |
| | 55–59 | 3,759 | 80,209 | 4.7 |
| | 60–64 | 8,740 | 174,291 | 5.0 |
| | 65–69 | 6,763 | 113,236 | 6.0 |
| | 70–74 | 10,549 | 146,795 | 7.2 |
| | *50–74* | *34,983* | *626,071* | *5.6* |
| Persons | 50–54 | 11,126 | 207,744 | 5.4 |
| | 55–59 | 8,207 | 149,492 | 5.5 |
| | 60–64 | 19,640 | 323,260 | 6.1 |
| | 65–69 | 15,424 | 214,865 | 7.2 |
| | 70–74 | 24,176 | 285,886 | 8.5 |
| | **50–74** | **78,573** | **1,181,247** | **6.7** |

*Source:* NBCSP Register as at 31 October 2019.

### Table A3.7: iFOBT positivity rate of people aged 50–74, by screening round, Australia, 2018

| Screen round | Positive result (N) | Valid screening test (N) | Screening positivity (%) |
|---|---|---|---|
| First | 25,841 | 333,837 | 7.7 |
| Subsequent (≤2 years) | 17,387 | 264,361 | 6.6 |
| Subsequent (>2 years) | 35,345 | 583,049 | 6.1 |
| **All rounds** | **78,573** | **1,181,247** | **6.7** |

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.8: iFOBT positivity rate of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2018**

| Area | | Positive result (N) | Valid screening test (N) | Screening positivity (%) |
|---|---|---|---|---|
| State and territory | NSW | 23,937 | 354,222 | 6.8 |
| | Vic | 20,874 | 314,697 | 6.6 |
| | Qld | 15,032 | 226,083 | 6.6 |
| | WA | 8,324 | 129,569 | 6.4 |
| | SA | 6,557 | 97,395 | 6.7 |
| | Tas | 2,362 | 33,840 | 7.0 |
| | ACT | 1,058 | 19,156 | 5.5 |
| | NT | 429 | 6,285 | 6.8 |
| Remoteness area[(a)] | Major cities | 50,034 | 783,251 | 6.4 |
| | Inner regional | 18,266 | 260,378 | 7.0 |
| | Outer regional | 8,216 | 108,576 | 7.6 |
| | Remote | 890 | 10,970 | 8.1 |
| | Very remote | 309 | 3,871 | 8.0 |
| | Unknown | 858 | 14,200 | 6.0 |
| Socioeconomic area[(a)] | 1 (lowest) | 17,608 | 223,455 | 7.9 |
| | 2 | 17,202 | 240,887 | 7.1 |
| | 3 | 14,867 | 222,543 | 6.7 |
| | 4 | 14,692 | 233,346 | 6.3 |
| | 5 (highest) | 13,336 | 246,572 | 5.4 |
| | Unknown | 868 | 14,444 | 6.0 |
| **Total** | | **78,573** | **1,181,247** | **6.7** |

(a) Total may not equal the sum of individual remoteness or socioeconomic areas due to rounding.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.9: iFOBT positivity rate of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2018**

| Population group | | Positive result (N) | Valid screening test (N) | Screening positivity (%) |
|---|---|---|---|---|
| Indigenous status | Indigenous | 942 | 9,497 | 9.9 |
| | Non-Indigenous | 75,677 | 1,150,910 | 6.6 |
| | Not stated | 1,954 | 20,840 | 9.4 |
| Main language spoken at home | Language other than English | 11,353 | 171,181 | 6.6 |
| | English | 67,220 | 1,010,066 | 6.7 |
| Disability status | Severe or profound activity limitation | 6,303 | 62,639 | 10.1 |
| | No severe or profound activity limitation | 69,021 | 1,081,791 | 6.4 |
| | Not stated | 3,249 | 36,817 | 8.8 |
| **Total** | | **78,573** | **1,181,247** | **6.7** |

*Source:* NBCSP Register as at 31 October 2019.

# Assessment

### Table A3.10: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age, Australia, 2018

| Sex | Age at first positive screen (years) | Assessments (N) | Positive iFOBT result (N) | Diagnostic assessment rate (%) |
|---|---|---|---|---|
| Males | 50–54 | 3,976 | 5,954 | 66.8 |
| | 55–59 | 2,972 | 4,448 | 66.8 |
| | 60–64 | 7,155 | 10,900 | 65.6 |
| | 65–69 | 5,601 | 8,661 | 64.7 |
| | 70–74 | 8,690 | 13,627 | 63.8 |
| | *50–74* | *28,394* | *43,590* | *65.1* |
| Females | 50–54 | 3,507 | 5,172 | 67.8 |
| | 55–59 | 2,580 | 3,759 | 68.6 |
| | 60–64 | 5,748 | 8,740 | 65.8 |
| | 65–69 | 4,462 | 6,763 | 66.0 |
| | 70–74 | 6,790 | 10,549 | 64.4 |
| | *50–74* | *23,087* | *34,983* | *66.0* |
| Persons | 50–54 | 7,483 | 11,126 | 67.3 |
| | 55–59 | 5,552 | 8,207 | 67.6 |
| | 60–64 | 12,903 | 19,640 | 65.7 |
| | 65–69 | 10,063 | 15,424 | 65.2 |
| | 70–74 | 15,480 | 24,176 | 64.0 |
| | **50–74** | **51,481** | **78,573** | **65.5** |

*Notes*

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date. Therefore, the number of assessment counts may differ across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.
3. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

### Table A3.11: Diagnostic assessments (colonoscopy) performed for people aged 50–74, by health-care provider, Australia, 2018

| Health-care provider | Assessments (N) | Proportion of assessments (%) |
|---|---|---|
| Public | 9,022 | 17.5 |
| Private | 37,113 | 72.1 |
| Not stated | 5,346 | 10.4 |
| **Total** | **51,481** | **100.0** |

*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.12: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2018**

| Area | | Assessments (N) | Positive iFOBT result (N) | Diagnostic assessment rate (%) |
|---|---|---|---|---|
| State and territory | NSW | 13,957 | 23,937 | 58.3 |
| | Vic | 13,591 | 20,874 | 65.1 |
| | Qld | 11,553 | 15,032 | 76.9 |
| | WA | 5,000 | 8,324 | 60.1 |
| | SA | 4,756 | 6,557 | 72.5 |
| | Tas | 1,646 | 2,362 | 69.7 |
| | ACT | 824 | 1,058 | 77.9 |
| | NT | 154 | 429 | 35.9 |
| Remoteness area | Major cities | 34,785 | 50,034 | 69.5 |
| | Inner regional | 10,802 | 18,266 | 59.1 |
| | Outer regional | 4,770 | 8,216 | 58.1 |
| | Remote | 470 | 890 | 52.8 |
| | Very remote | 132 | 309 | 42.7 |
| | Unknown | 522 | 858 | 60.8 |
| Socioeconomic area | 1 (lowest) | 10,463 | 17,608 | 59.4 |
| | 2 | 10,243 | 17,202 | 59.5 |
| | 3 | 9,810 | 14,867 | 66.0 |
| | 4 | 10,528 | 14,692 | 71.7 |
| | 5 (highest) | 9,910 | 13,336 | 74.3 |
| | Unknown | 527 | 868 | 60.7 |
| **Total** | | **51,481** | **78,573** | **65.5** |

*Notes*

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date. Therefore, the number of assessment counts may differ across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.
3. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.13: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2018**

| Population group | | Assessments (N) | Positive iFOBT result (N) | Diagnostic assessment rate (%) |
|---|---|---|---|---|
| Indigenous status | Indigenous | 449 | 942 | 47.7 |
| | Non-Indigenous | 49,919 | 75,677 | 66.0 |
| | Not stated | 1,113 | 1,954 | 57.0 |
| Main language spoken at home | Language other than English | 7,008 | 11,353 | 61.7 |
| | English | 44,473 | 67,220 | 66.2 |
| Disability status | Severe or profound activity limitation | 3,224 | 6,303 | 51.2 |
| | No severe or profound activity limitation | 46,396 | 69,021 | 67.2 |
| | Not stated | 1,861 | 3,249 | 57.3 |
| **Total** | | **51,481** | **78,573** | **65.5** |

*Notes*

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date. Therefore, the number of assessment counts may differ across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.
3. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.14: Diagnostic assessment rate (colonoscopy) of people aged 50–74, by sex and age, Australia, 2007–2018**

| Sex | Age at first positive screen (years) | Diagnostic assessment rate (%) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| Males | 50–54 | . . | 75.5 | 76.4 | 76.8 | 74.7 | 74.2 | 71.8 | 73.4 | 71.4 | 69.2 | 67.7 | 66.8 |
| | 55–59 | 77.7 | 77.6 | 75.4 | 77.4 | 77.1 | 74.2 | 74.0 | 71.8 | 71.0 | 69.0 | 65.6 | 66.8 |
| | 60–64 | . . | . . | . . | . . | . . | . . | 74.5 | 72.8 | 70.5 | 68.8 | 66.4 | 65.6 |
| | 65–69 | 75.9 | 76.5 | 77.0 | 77.8 | 78.3 | 75.0 | 74.4 | 73.7 | 70.2 | 68.2 | 65.5 | 64.7 |
| | 70–74 | . . | . . | . . | . . | . . | . . | 50.0 | 100.0 | 68.4 | 65.5 | 64.9 | 63.8 |
| | *50–74* | *76.7* | *76.7* | *76.3* | *77.4* | *76.9* | *74.6* | *73.7* | *73.0* | *70.0* | *67.4* | *65.8* | *65.1* |
| Females | 50–54 | . . | 77.4 | 76.2 | 78.4 | 77.9 | 75.5 | 74.2 | 73.6 | 73.6 | 69.5 | 69.1 | 67.8 |
| | 55–59 | 78.0 | 79.2 | 79.8 | 77.6 | 77.5 | 75.8 | 74.9 | 73.1 | 72.6 | 70.7 | 69.2 | 68.6 |
| | 60–64 | . . | . . | . . | . . | . . | . . | 75.9 | 74.1 | 72.8 | 70.3 | 67.4 | 65.8 |
| | 65–69 | 77.1 | 77.7 | 75.2 | 78.6 | 78.8 | 76.4 | 74.6 | 74.6 | 71.5 | 69.8 | 67.0 | 66.0 |
| | 70–74 | . . | . . | . . | . . | . . | . . | 66.7 | . . | 68.7 | 67.1 | 65.7 | 64.4 |
| | *50–74* | *77.5* | *78.2* | *76.9* | *78.2* | *78.1* | *76.0* | *74.7* | *73.9* | *71.4* | *69.0* | *67.3* | *66.0* |
| Persons | 50–54 | . . | 76.4 | 76.3 | 77.6 | 76.3 | 74.8 | 73.1 | 73.5 | 72.5 | 69.4 | 68.4 | 67.3 |
| | 55–59 | 77.9 | 78.4 | 77.6 | 77.5 | 77.3 | 75.0 | 74.5 | 72.5 | 71.8 | 69.9 | 67.3 | 67.6 |
| | 60–64 | . . | . . | . . | . . | . . | . . | 75.2 | 73.4 | 71.6 | 69.5 | 66.9 | 65.7 |
| | 65–69 | 76.4 | 77.0 | 76.2 | 78.2 | 78.5 | 75.7 | 74.5 | 74.1 | 70.8 | 69.0 | 66.2 | 65.2 |
| | 70–74 | . . | . . | . . | . . | . . | . . | 57.1 | 75.0 | 68.5 | 66.2 | 65.3 | 64.0 |
| | **50–74** | **77.1** | **77.4** | **76.6** | **77.8** | **77.5** | **75.3** | **74.2** | **73.4** | **70.6** | **68.2** | **66.5** | **65.5** |

*Notes*

1. Calculation of the diagnostic assessment rate is based on the screening test date. In contrast, calculation of the PPVs and detection rates for both adenoma and carcinoma, and the hospital admission rate, is based on the diagnostic assessment date. Therefore, the number of assessment counts may differ across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.
3. For 2018 only, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.15: Time between positive screen and diagnostic assessment of people aged 50–74, by sex and age, Australia, 2018**

| Sex | Age group (years) | No diagnostic assessment | | ≤30 days | | ≤60 days | | ≤120 days | | ≤180 days | | ≤360 days | | >360 days | | All |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N |
| Males | 50–54 | 1,978 | 33.2 | 901 | 15.1 | 2,259 | 37.9 | 3,317 | 55.7 | 3,706 | 62.2 | 3,967 | 66.6 | 9 | 0.2 | 5,954 |
| | 55–59 | 1,476 | 33.2 | 673 | 15.1 | 1,655 | 37.2 | 2,474 | 55.6 | 2,765 | 62.2 | 2,959 | 66.5 | 13 | 0.3 | 4,448 |
| | 60–64 | 3,745 | 34.4 | 1,665 | 15.3 | 4,060 | 37.2 | 6,090 | 55.9 | 6,699 | 61.5 | 7,122 | 65.3 | 33 | 0.3 | 10,900 |
| | 65–69 | 3,060 | 35.3 | 1,300 | 15.0 | 3,300 | 38.1 | 4,835 | 55.8 | 5,283 | 61.0 | 5,585 | 64.5 | 16 | 0.2 | 8,661 |
| | 70–74 | 4,937 | 36.2 | 2,087 | 15.3 | 5,139 | 37.7 | 7,538 | 55.3 | 8,205 | 60.2 | 8,654 | 63.5 | 36 | 0.3 | 13,627 |
| | *50–74* | *15,196* | *34.9* | *6,626* | *15.2* | *16,413* | *37.7* | *24,254* | *55.6* | *26,658* | *61.2* | *28,287* | *64.9* | *107* | *0.2* | *43,590* |
| Females | 50–54 | 1,665 | 32.2 | 861 | 16.6 | 2,021 | 39.1 | 2,995 | 57.9 | 3,293 | 63.7 | 3,495 | 67.6 | 12 | 0.2 | 5,172 |
| | 55–59 | 1,179 | 31.4 | 672 | 17.9 | 1,534 | 40.8 | 2,239 | 59.6 | 2,439 | 64.9 | 2,572 | 68.4 | 8 | 0.2 | 3,759 |
| | 60–64 | 2,992 | 34.2 | 1,479 | 16.9 | 3,405 | 39.0 | 4,937 | 56.5 | 5,428 | 62.1 | 5,731 | 65.6 | 17 | 0.2 | 8,740 |
| | 65–69 | 2,301 | 34.0 | 1,138 | 16.8 | 2,674 | 39.5 | 3,864 | 57.1 | 4,229 | 62.5 | 4,443 | 65.7 | 19 | 0.3 | 6,763 |
| | 70–74 | 3,759 | 35.6 | 1,628 | 15.4 | 4,051 | 38.4 | 5,916 | 56.1 | 6,438 | 61.0 | 6,763 | 64.1 | 27 | 0.3 | 10,549 |
| | *50–74* | *11,896* | *34.0* | *5,778* | *16.5* | *13,685* | *39.1* | *19,951* | *57.0* | *21,827* | *62.4* | *23,004* | *65.8* | *83* | *0.2* | *34,983* |
| Persons | 50–54 | 3,643 | 32.7 | 1,762 | 15.8 | 4,280 | 38.5 | 6,312 | 56.7 | 6,999 | 62.9 | 7,462 | 67.1 | 21 | 0.2 | 11,126 |
| | 55–59 | 2,655 | 32.4 | 1,345 | 16.4 | 3,189 | 38.9 | 4,713 | 57.4 | 5,204 | 63.4 | 5,531 | 67.4 | 21 | 0.3 | 8,207 |
| | 60–64 | 6,737 | 34.3 | 3,144 | 16.0 | 7,465 | 38.0 | 11,027 | 56.1 | 12,127 | 61.7 | 12,853 | 65.4 | 50 | 0.3 | 19,640 |
| | 65–69 | 5,361 | 34.8 | 2,438 | 15.8 | 5,974 | 38.7 | 8,699 | 56.4 | 9,512 | 61.7 | 10,028 | 65.0 | 35 | 0.2 | 15,424 |
| | 70–74 | 8,696 | 36.0 | 3,715 | 15.4 | 9,190 | 38.0 | 13,454 | 55.7 | 14,643 | 60.6 | 15,417 | 63.8 | 63 | 0.3 | 24,176 |
| | **50–74** | **27,092** | **34.5** | **12,404** | **15.8** | **30,098** | **38.3** | **44,205** | **56.3** | **48,485** | **61.7** | **51,291** | **65.3** | **190** | **0.2** | **78,573** |

*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.16: Time between positive screen and diagnostic assessment of people aged 50–74, by state and territory, remoteness area and socioeconomic area, Australia, 2018**

| | | No diagnostic assessment | | ≤30 days | | ≤60 days | | ≤120 days | | ≤180 days | | ≤360 days | | >360 days | | All |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Area** | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** |
| State or territory | NSW | 9,980 | 41.7 | 2,722 | 11.4 | 7,407 | 30.9 | 11,584 | 48.4 | 12,979 | 54.2 | 13,919 | 58.1 | 38 | 0.2 | 23,937 |
| | Vic | 7,283 | 34.9 | 4,740 | 22.7 | 9,821 | 47.0 | 12,429 | 59.5 | 13,138 | 62.9 | 13,572 | 65.0 | 19 | 0.1 | 20,874 |
| | Qld | 3,479 | 23.1 | 2,380 | 15.8 | 5,833 | 38.8 | 9,719 | 64.7 | 10,878 | 72.4 | 11,492 | 76.5 | 61 | 0.4 | 15,032 |
| | WA | 3,324 | 39.9 | 1,317 | 15.8 | 3,398 | 40.8 | 4,546 | 54.6 | 4,807 | 57.7 | 4,991 | 60.0 | 9 | 0.1 | 8,324 |
| | SA | 1,801 | 27.5 | 841 | 12.8 | 2,315 | 35.3 | 3,833 | 58.5 | 4,345 | 66.3 | 4,728 | 72.1 | 28 | 0.4 | 6,557 |
| | Tas | 716 | 30.3 | 272 | 11.5 | 856 | 36.2 | 1,251 | 53.0 | 1,407 | 59.6 | 1,616 | 68.4 | 30 | 1.3 | 2,362 |
| | ACT | 234 | 22.1 | 106 | 10.0 | 385 | 36.4 | 706 | 66.7 | 786 | 74.3 | 819 | 77.4 | 5 | n.p. | 1,058 |
| | NT | 275 | 64.1 | 26 | 6.1 | 83 | 19.3 | 137 | 31.9 | 145 | 33.8 | 154 | 35.9 | – | – | 429 |
| Remoteness area[(a)] | Major cities | 15,390 | 30.5 | 9,170 | 18.2 | 20,652 | 40.9 | 29,994 | 59.5 | 33,023 | 65.5 | 34,938 | 69.3 | 111 | 0.2 | 50,439 |
| | Inner regional | 7,547 | 41.2 | 2,265 | 12.4 | 6,360 | 34.7 | 9,321 | 50.9 | 10,119 | 55.3 | 10,713 | 58.5 | 50 | 0.3 | 18,310 |
| | Outer regional | 3,273 | 41.4 | 773 | 9.8 | 2,525 | 31.9 | 3,996 | 50.5 | 4,357 | 55.1 | 4,614 | 58.3 | 25 | 0.3 | 7,912 |
| | Remote | 379 | 49.4 | 49 | 6.4 | 185 | 24.1 | 341 | 44.5 | 375 | 48.9 | 387 | 50.5 | 1 | n.p. | 767 |
| | Very remote | 167 | 58.2 | 16 | 5.6 | 49 | 17.1 | 99 | 34.5 | 112 | 39.0 | 119 | 41.5 | 1 | n.p. | 287 |
| | Unknown | 336 | 39.2 | 131 | 15.3 | 327 | 38.1 | 454 | 52.9 | 499 | 58.2 | 520 | 60.6 | 2 | n.p. | 858 |
| Socioeconomic area | 1 (lowest) | 7,145 | 40.6 | 1,820 | 10.3 | 5,352 | 30.4 | 8,614 | 48.9 | 9,681 | 55.0 | 10,401 | 59.1 | 62 | 0.4 | 17,608 |
| | 2 | 6,959 | 40.5 | 2,156 | 12.5 | 5,850 | 34.0 | 8,767 | 51.0 | 9,610 | 55.9 | 10,207 | 59.3 | 36 | 0.2 | 17,202 |
| | 3 | 5,057 | 34.0 | 2,431 | 16.4 | 5,693 | 38.3 | 8,355 | 56.2 | 9,212 | 62.0 | 9,774 | 65.7 | 36 | 0.2 | 14,867 |
| | 4 | 4,164 | 28.3 | 2,853 | 19.4 | 6,428 | 43.8 | 9,164 | 62.4 | 9,967 | 67.8 | 10,484 | 71.4 | 44 | 0.3 | 14,692 |
| | 5 (highest) | 3,426 | 25.7 | 3,009 | 22.6 | 6,440 | 48.3 | 8,849 | 66.4 | 9,513 | 71.3 | 9,900 | 74.2 | 10 | 0.1 | 13,336 |
| | Unknown | 341 | 39.3 | 135 | 15.6 | 335 | 38.6 | 456 | 52.5 | 502 | 57.8 | 525 | 60.5 | 2 | n.p. | 868 |
| **Total** | | **27,092** | **34.5** | **12,404** | **15.8** | **30,098** | **38.3** | **44,205** | **56.3** | **48,485** | **61.7** | **51,291** | **65.3** | **190** | **0.2** | **78,573** |

(a) A participant's location may be divided across multiple remoteness areas proportionally. For PI 4, participants were assigned to their largest proportion remoteness area. See Appendix E for more information.

*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.17: Time between positive screen and diagnostic assessment of people aged 50–74, by Indigenous status, language spoken at home and disability status, Australia, 2018**

| Population group | | No diagnostic assessment | | ≤30 days | | ≤60 days | | ≤120 days | | ≤180 days | | ≤360 days | | >360 days | | All |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N |
| Indigenous status | Indigenous | 493 | 52.3 | 70 | 7.4 | 191 | 20.3 | 349 | 37.0 | 402 | 42.7 | 448 | 47.6 | 1 | n.p. | 942 |
| | Non-Indigenous | 25,758 | 34.0 | 12,133 | 16.0 | 29,348 | 38.8 | 42,967 | 56.8 | 47,074 | 62.2 | 49,735 | 65.7 | 184 | 0.2 | 75,677 |
| | Not stated | 841 | 43.0 | 201 | 10.3 | 559 | 28.6 | 889 | 45.5 | 1,009 | 51.6 | 1,108 | 56.7 | 5 | n.p. | 1,954 |
| Language spoken at home | Language other than English | 4,345 | 38.3 | 1,726 | 15.2 | 3,919 | 34.5 | 5,711 | 50.3 | 6,459 | 56.9 | 6,980 | 61.5 | 28 | 0.2 | 11,353 |
| | English | 22,747 | 33.8 | 10,678 | 15.9 | 26,179 | 38.9 | 38,494 | 57.3 | 42,026 | 62.5 | 44,311 | 65.9 | 162 | 0.2 | 67,220 |
| Disability status | Severe or profound activity limitation | 3,079 | 48.8 | 563 | 8.9 | 1,518 | 24.1 | 2,486 | 39.4 | 2,866 | 45.5 | 3,200 | 50.8 | 24 | 0.4 | 6,303 |
| | No severe or profound activity limitation | 22,625 | 32.8 | 11,489 | 16.6 | 27,617 | 40.0 | 40,218 | 58.3 | 43,917 | 63.6 | 46,240 | 67.0 | 156 | 0.2 | 69,021 |
| | Not stated | 1,388 | 42.7 | 352 | 10.8 | 963 | 29.6 | 1,501 | 46.2 | 1,702 | 52.4 | 1,851 | 57.0 | 10 | 0.3 | 3,249 |
| **Total** | | **27,092** | **34.5** | **12,404** | **15.8** | **30,098** | **38.3** | **44,205** | **56.3** | **48,485** | **61.7** | **51,291** | **65.3** | **190** | **0.2** | **78,573** |

*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.18: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (in days), by sex and age, Australia, 2018**

| Sex | Age at first positive screen (years) | Median | 90th percentile |
|---|---|---|---|
| Males | 50–54 | 53 | 155 |
| | 55–59 | 54 | 153 |
| | 60–64 | 52 | 149 |
| | 65–69 | 51 | 143 |
| | 70–74 | 51 | 138 |
| | *50–74* | *52* | *146* |
| Females | 50–54 | 52 | 145 |
| | 55–59 | 49 | 137 |
| | 60–64 | 50 | 144 |
| | 65–69 | 49 | 140 |
| | 70–74 | 50 | 137 |
| | *50–74* | *50* | *140* |
| Persons | 50–54 | 52 | 151 |
| | 55–59 | 53 | 146 |
| | 60–64 | 51 | 146 |
| | 65–69 | 50 | 142 |
| | 70–74 | 50 | 138 |
| | **50–74** | **51** | **144** |

*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.19: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (in days), by health-care provider, Australia, 2018**

| Health-care provider | Median | 90th percentile |
|---|---|---|
| Public | 77 | 178 |
| Private | 45 | 129 |
| Not stated | 58 | 164 |
| **Total** | **51** | **144** |

*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.20: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (in days), by state and territory, remoteness and socioeconomic area, Australia, 2018**

| Area | | Median | 90th percentile |
|---|---|---|---|
| State and territory | NSW | 57 | 157 |
| | Vic | 40 | 111 |
| | Qld | 60 | 147 |
| | WA | 46 | 116 |
| | SA | 62 | 169 |
| | Tas | 58 | 228 |
| | ACT | 63 | 137 |
| | NT | 57 | 122 |
| Remoteness area[(a)] | Major cities | 50 | 145 |
| | Inner regional | 51 | 140 |
| | Outer regional | 56 | 143 |
| | Remote | 62 | 126 |
| | Very remote | 66 | 153 |
| | Unknown | 48 | 134 |
| Socioeconomic area | 1 (lowest) | 59 | 160 |
| | 2 | 53 | 146 |
| | 3 | 51 | 147 |
| | 4 | 48 | 138 |
| | 5 (highest) | 44 | 125 |
| | Unknown | 47 | 138 |
| **Total** | | **51** | **144** |

(a) A participant's location may be divided across multiple remoteness areas proportionally. For PI 4, participants were assigned to their largest proportion remoteness area. See Appendix E for more information.

*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.21: Time between positive screen and diagnostic assessment of people aged 50–74, median and 90th percentile value (in days), by Indigenous status, language spoken at home and disability status, Australia, 2018**

| Population group | | Median | 90th percentile |
|---|---|---|---|
| Indigenous status | Indigenous | 69 | 182 |
| | Non-Indigenous | 51 | 142 |
| | Not stated | 60 | 176 |
| Main language spoken at home | Language other than English | 53 | 163 |
| | English | 51 | 140 |
| Disability status | Severe or profound activity limitation | 65 | 189 |
| | No severe or profound activity limitation | 50 | 139 |
| | Not stated | 58 | 167 |
| **Total** | | 51 | 144 |

*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.22: Time between positive screen and diagnostic assessment of people aged 50–74, median (in days), by sex and age, Australia, 2007–2018**

| Sex | Age at first positive screen (years) | Median days | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| Males | 50–54 | . . | 58 | 63 | 62 | 58 | 58 | 59 | 60 | 57 | 55 | 55 | 52.5 |
| | 55–59 | 56 | 55 | 58 | 60 | 57 | 57 | 56 | 56 | 56 | 57 | 55 | 54 |
| | 60–64 | . . | . . | . . | . . | . . | . . | 58 | 56 | 55 | 56 | 53 | 52 |
| | 65–69 | 54 | 52 | 59 | 56 | 55 | 52 | 51 | 55 | 53 | 55 | 53 | 51 |
| | 70–74 | . . | . . | . . | . . | . . | . . | 124 | 78 | 54 | 53 | 53 | 51 |
| | *50–74* | *55* | *54* | *60* | *58* | *56* | *55* | *55* | *56* | *55* | *55* | *53* | *52* |
| Females | 50–54 | . . | 53 | 60 | 60 | 59 | 56 | 55 | 55 | 55 | 55 | 51 | 52 |
| | 55–59 | 54 | 55 | 57 | 56 | 54 | 54 | 54 | 56 | 53 | 52 | 53 | 49 |
| | 60–64 | . . | . . | . . | . . | . . | . . | 57 | 51.5 | 52 | 53 | 51 | 50 |
| | 65–69 | 52 | 51 | 54 | 54 | 51 | 52 | 48 | 52 | 51 | 53 | 50 | 49 |
| | 70–74 | . . | . . | . . | . . | . . | . . | 51 | . . | 51 | 53 | 51 | 50 |
| | *50–74* | *53* | *53* | *56* | *57* | *54* | *54* | *52* | *53* | *52* | *53* | *51* | *50* |
| Persons | 50–54 | . . | 56 | 61 | 61 | 58 | 57 | 57 | 56 | 56 | 55 | 53 | 52 |
| | 55–59 | 56 | 55 | 57 | 58 | 56 | 56 | 55 | 56 | 55 | 55 | 54 | 53 |
| | 60–64 | . . | . . | . . | . . | . . | . . | 58 | 54 | 53 | 55 | 52 | 51 |
| | 65–69 | 53 | 51 | 56 | 55 | 53 | 52 | 50 | 54 | 53 | 54 | 51 | 50 |
| | 70–74 | . . | . . | . . | . . | . . | . . | 86 | 78 | 53 | 53 | 52 | 50 |
| | **50–74** | **54** | **53** | **58** | **57** | **55** | **55** | **53** | **55** | **53** | **54** | **52** | **51** |

*Notes*

1. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
2. For this report, this performance indicator has only a 10-month follow-up period to 31 October 2019, rather than the usual 12 months to 31 December 2019. See Box 1 for more information.

*Source:* NBCSP Register as at 31 October 2019.

## Diagnosis

Diagnosis data were not considered complete enough to allow formal performance indicator reporting of NBCSP diagnostic outcomes. Therefore, data for the diagnostic performance indicators are not available.

See Chapter 4 for a summary of bowel abnormality detection results, using available assessment and diagnosis data.

# Outcomes

**Table A3.23: Hospital admissions within 30 days of assessment of people aged 50–74, by sex and age, Australia, 2018**

| Sex | Age group at assessment (years) | Hospital admissions (N) | Assessments (N) | Hospital admission rate (per 10,000 assessments) |
|---|---|---|---|---|
| Males | 50–54 | – | 3,961 | – |
| | 55–59 | – | 3,349 | – |
| | 60–64 | 1 | 6,703 | n.p. |
| | 65–69 | – | 5,255 | – |
| | 70–74 | 5 | 8,688 | n.p. |
| | *50–74* | *6* | *27,956* | *2.1* |
| Females | 50–54 | – | 3,563 | – |
| | 55–59 | – | 3,057 | – |
| | 60–64 | – | 5,464 | – |
| | 65–69 | – | 4,204 | – |
| | 70–74 | – | 6,855 | – |
| | *50–74* | – | *23,143* | – |
| Persons | 50–54 | – | 7,524 | – |
| | 55–59 | – | 6,406 | – |
| | 60–64 | 1 | 12,167 | n.p. |
| | 65–69 | – | 9,459 | – |
| | 70–74 | 5 | 15,543 | n.p. |
| | **50–74** | **6** | **51,099** | **1.2** |

*Notes*

1. The hospital admission rate is calculated based on the diagnostic assessment date. This is the same as the PPV rate for adenoma and the PPV rate for carcinoma. This differs from the diagnostic assessment rate, which is calculated based on the screening test date. Therefore, assessment counts may differ across indicators.
2. This indicator relies on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See ‘Current reporting limitations’ on page 4 for more details.

*Source:* NBCSP Register as at 31 October 2019.

**Table A3.24: Incidence of bowel cancer, by sex and age group, Australia, 2020**

| | Male | | Female | | Persons | |
|---|---|---|---|---|---|---|
| **Age group (years)** | **Number** | **Rate** | **Number** | **Rate** | **Number** | **Rate** |
| 0–4 | — | — | — | — | — | — |
| 5–9 | 3 | n.p. | 2 | n.p. | 5 | n.p. |
| 10–14 | 10 | 1.3 | 24 | 3.1 | 35 | 2.2 |
| 15–19 | 22 | 2.8 | 36 | 4.9 | 58 | 3.8 |
| 20–24 | 25 | 2.8 | 44 | 5.0 | 69 | 3.9 |
| 25–29 | 66 | 6.7 | 85 | 8.8 | 151 | 7.7 |
| 30–34 | 122 | 12.7 | 130 | 13.3 | 252 | 13.0 |
| 35–39 | 134 | 14.6 | 119 | 12.8 | 253 | 13.7 |
| 40–44 | 201 | 25.0 | 168 | 20.6 | 369 | 22.7 |
| 45–49 | 310 | 37.5 | 305 | 35.9 | 615 | 36.7 |
| 50–54 | 453 | 59.5 | 344 | 43.1 | 796 | 51.1 |
| 55–59 | 528 | 69.8 | 385 | 48.9 | 913 | 59.1 |
| 60–64 | 938 | 135.6 | 612 | 83.9 | 1,550 | 109.1 |
| 65–69 | 863 | 143.3 | 590 | 92.0 | 1,453 | 116.8 |
| 70–74 | 1,389 | 259.8 | 1,125 | 201.1 | 2,514 | 229.8 |
| 75–79 | 1,367 | 372.2 | 1,078 | 269.7 | 2,445 | 318.8 |
| 80–84 | 1,062 | 447.7 | 981 | 343.2 | 2,043 | 390.6 |
| 85+ | 849 | 425.2 | 1,125 | 354.2 | 1,974 | 381.6 |
| *Ages 50–74 crude rate* | *4,171* | *124.6* | *3,056* | *86.9* | *7,227* | *105.3* |
| *Ages 50–74 ASR* | *4,171* | *117.4* | *3,056* | *82.1* | *7,227* | *99.3* |
| **All ages ASR** | **8,340** | **57.9** | **7,154** | **44.3** | **15,494** | **50.8** |

*Notes*

1. The 2020 estimates are based on 2007–2016 incidence data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people. The ASRs for ages 50–74 and all ages were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.

*Source:* AIHW ACD 2016.

**Table A3.25: Incidence of bowel cancer, by state and territory, remoteness area and socioeconomic area, people aged 50–74 years, Australia, 2011–2015**

| Area | | Number | ASR |
|---|---|---|---|
| State and territory | NSW | 13,024 | 129.5 |
| | Vic | 9,398 | 124.7 |
| | Qld | 8,009 | 131.6 |
| | WA | 3,646 | 118.9 |
| | SA | 3,208 | 132.4 |
| | Tas | 1,216 | 148.9 |
| | ACT | 509 | 116.8 |
| | NT | 258 | 116.5 |
| Remoteness area | Major cities | 24,866 | 123.2 |
| | Inner regional | 9,170 | 136.5 |
| | Outer regional | 4,460 | 141.4 |
| | Remote | 530 | 132.5 |
| | Very remote | 217 | 114.5 |
| | Unknown | 25 | . . |
| Socioeconomic area | 1 (lowest) | 8,940 | 140.2 |
| | 2 | 8,968 | 137.9 |
| | 3 | 7,881 | 127.0 |
| | 4 | 6,962 | 122.9 |
| | 5 (highest) | 6,477 | 109.5 |
| | Unknown | 40 | . . |
| **Total** | | **39,268** | **128.2** |

*Notes*

1. 'State or territory' refers to the state or territory of usual residence.
2. Remoteness was classified according to the ASGS Remoteness Areas (see Appendix E).
3. Socioeconomic areas were classified using the ABS IRSD (see Appendix E).
4. ASRs are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
5. The number of people in different remoteness or socioeconomic areas may not sum to total due to rounding.

*Source:* AIHW ACD 2016.

**Table A3.26: Incidence of bowel cancer, by Indigenous status, New South Wales, Victoria, Queensland, Western Australia and the Northern Territory, 50–74 years, 2011–2015**

| Indigenous status | Number | ASR |
|---|---|---|
| Indigenous | 444 | 116.5 |
| Non-Indigenous | 32,206 | 121.2 |
| Not stated | 1,685 | . . |
| **Total** | **34,335** | **127.4** |

*Note:* The rates were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.

*Source:* AIHW ACD 2016.

**Table A3.27: Incidence of bowel cancer, by sex, people aged 50–74, Australia, 1982–2020**

| | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| Year | Number | ASR | Number | ASR | Number | ASR |
| 1982 | 2,396 | 160.0 | 1,991 | 119.6 | 4,387 | 138.3 |
| 1983 | 2,474 | 160.9 | 1,940 | 114.8 | 4,414 | 136.3 |
| 1984 | 2,610 | 166.4 | 2,057 | 119.2 | 4,667 | 141.6 |
| 1985 | 2,811 | 176.3 | 2,192 | 126.6 | 5,003 | 150.0 |
| 1986 | 2,775 | 170.1 | 2,175 | 123.5 | 4,950 | 145.4 |
| 1987 | 2,872 | 173.8 | 2,218 | 123.5 | 5,090 | 147.3 |
| 1988 | 2,916 | 172.9 | 2,156 | 117.8 | 5,072 | 144.2 |
| 1989 | 3,111 | 181.5 | 2,257 | 122.7 | 5,368 | 150.6 |
| 1990 | 3,102 | 178.1 | 2,301 | 123.6 | 5,403 | 149.8 |
| 1991 | 3,425 | 192.9 | 2,418 | 126.9 | 5,843 | 158.7 |
| 1992 | 3,339 | 184.1 | 2,533 | 131.9 | 5,872 | 157.0 |
| 1993 | 3,475 | 188.1 | 2,505 | 128.4 | 5,980 | 157.1 |
| 1994 | 3,644 | 192.5 | 2,635 | 132.5 | 6,279 | 161.4 |
| 1995 | 3,726 | 193.8 | 2,577 | 127.3 | 6,303 | 159.6 |
| 1996 | 3,920 | 201.3 | 2,620 | 127.8 | 6,540 | 163.4 |
| 1997 | 3,934 | 197.0 | 2,610 | 125.1 | 6,544 | 160.1 |
| 1998 | 3,888 | 190.5 | 2,713 | 127.9 | 6,601 | 158.4 |
| 1999 | 3,928 | 188.4 | 2,721 | 125.8 | 6,649 | 156.4 |
| 2000 | 4,219 | 198.1 | 2,800 | 127.4 | 7,019 | 162.0 |
| 2001 | 4,174 | 191.7 | 2,848 | 127.0 | 7,022 | 158.8 |
| 2002 | 4,208 | 189.0 | 2,800 | 122.5 | 7,008 | 155.3 |
| 2003 | 4,192 | 184.8 | 2,870 | 123.4 | 7,062 | 153.6 |
| 2004 | 4,334 | 187.3 | 2,881 | 121.6 | 7,215 | 154.0 |
| 2005 | 4,296 | 181.3 | 2,848 | 117.3 | 7,144 | 148.9 |
| 2006 | 4,428 | 183.2 | 3,038 | 122.1 | 7,466 | 152.1 |
| 2007 | 4,758 | 189.7 | 3,305 | 128.6 | 8,063 | 158.7 |
| 2008 | 4,798 | 185.3 | 3,233 | 122.2 | 8,031 | 153.3 |
| 2009 | 4,539 | 170.0 | 3,088 | 113.3 | 7,627 | 141.3 |
| 2010 | 4,919 | 177.5 | 3,294 | 116.8 | 8,213 | 146.8 |
| 2011 | 4,719 | 165.6 | 3,296 | 114.0 | 8,015 | 139.5 |
| 2012 | 4,610 | 156.4 | 3,208 | 106.4 | 7,818 | 131.1 |
| 2013 | 4,463 | 146.6 | 3,146 | 101.6 | 7,609 | 123.8 |
| 2014 | 4,621 | 147.9 | 3,178 | 99.6 | 7,799 | 123.4 |
| 2015 | 4,712 | 147.8 | 3,315 | 101.3 | 8,027 | 124.2 |
| 2016 | 4,698 | 144.0 | 3,287 | 97.9 | 7,985 | 120.5 |
| 2017 | 4,469 | 133.5 | 3,183 | 92.0 | 7,652 | 112.4 |
| 2018 | 4,392 | 128.2 | 3,156 | 88.7 | 7,548 | 108.0 |
| 2019 | 4,287 | 122.8 | 3,109 | 85.4 | 7,396 | 103.7 |
| 2020 | 4,171 | 117.4 | 3,056 | 82.1 | 7,227 | 99.3 |

*Notes*

1. The 2017–2020 estimates are based on 2007–2016 incidence data. The 2016 counts includes estimates for the Northern Territory. See Appendix D for further information.
2. ASRs are expressed as the number per 100,000 people.

*Source:* AIHW ACD 2016.

**Table A3.28: Mortality from bowel cancer, by sex and age, Australia, 2020**

| | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| **Age group (years)** | **Number** | **Rate** | **Number** | **Rate** | **Number** | **Rate** |
| 0–4 | — | — | — | — | — | — |
| 5–9 | — | — | — | — | — | — |
| 10–14 | — | — | — | — | — | — |
| 15–19 | 1 | n.p. | — | — | 1 | n.p. |
| 20–24 | — | n.p. | 1 | n.p. | 2 | n.p. |
| 25–29 | 8 | 0.8 | 9 | 0.9 | 17 | 0.9 |
| 30–34 | 26 | 2.7 | 20 | 2.1 | 46 | 2.4 |
| 35–39 | 23 | 2.5 | 22 | 2.3 | 45 | 2.4 |
| 40–44 | 33 | 4.1 | 29 | 3.6 | 62 | 3.8 |
| 45–49 | 62 | 7.5 | 57 | 6.7 | 119 | 7.1 |
| 50–54 | 116 | 15.2 | 85 | 10.7 | 201 | 12.9 |
| 55–59 | 160 | 21.2 | 98 | 12.4 | 258 | 16.7 |
| 60–64 | 208 | 30.0 | 164 | 22.4 | 371 | 26.1 |
| 65–69 | 313 | 51.9 | 190 | 29.6 | 502 | 40.4 |
| 70–74 | 337 | 63.0 | 235 | 42.1 | 572 | 52.3 |
| 75–79 | 450 | 122.6 | 358 | 89.6 | 808 | 105.4 |
| 80–84 | 441 | 185.8 | 402 | 140.7 | 843 | 161.1 |
| 85+ | 650 | 325.7 | 823 | 259.3 | 1,474 | 284.9 |
| *Ages 50–74 crude* | *1,133* | *33.9* | *772* | *22.0* | *1,905* | *27.8* |
| *Ages 50–74 ASR* | *1,133* | *31.8* | *772* | *20.6* | *1,905* | *26.1* |
| **All ages ASR** | **2,828** | **19.5** | **2,494** | **14.2** | **5,322** | **16.7** |

*Notes*

1. The 2020 estimates are based on 2009–2018 mortality data. See Appendix D for further information.
2. Age-specific rates are expressed per 100,000 people. The ASRs for ages 50–74 and all ages were age standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.

*Source:* AIHW NMD.

**Table A3.29: Mortality from bowel cancer, by state and territory, remoteness area and socioeconomic group, 50–74 years, Australia, 2014–2018**

| Area | | Number | ASR |
|---|---|---|---|
| State or territory | NSW | 3,375 | 31.1 |
| | Vic | 2,540 | 30.6 |
| | Qld | 2,145 | 32.1 |
| | WA | 897 | 26.9 |
| | SA | 871 | 33.6 |
| | Tas | 285 | 32.0 |
| | ACT | 138 | 28.6 |
| | NT | 97 | 41.9 |
| Remoteness area | Major cities | 6,396 | 29.1 |
| | Inner regional | 2,516 | 34.1 |
| | Outer regional | 1,213 | 35.4 |
| | Remote | 133 | 31.6 |
| | Very remote | 66 | 35.3 |
| | Unknown | 22 | . . |
| Socioeconomic group | 1 (lowest) | 2,546 | 37.2 |
| | 2 | 2,452 | 34.7 |
| | 3 | 2,028 | 29.8 |
| | 4 | 1,769 | 28.4 |
| | 5 (highest) | 1,531 | 23.7 |
| | Unknown | 22 | . . |
| **Total** | | **10,348** | **31.0** |

*Notes*

1. 'State or territory' refers to the state or territory of usual residence.
2. Remoteness was classified according to the ASGS Remoteness Areas (see Appendix E).
3. Socioeconomic areas were classified using the ABS IRSD (see Appendix E).
4. ASRs are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
5. Deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on the revised version; and deaths registered in 2017 and 2018 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.
6. The number of people in different remoteness or socioeconomic areas may not sum to total due to rounding.

*Source:* AIHW NMD.

**Table A3.30: Mortality from bowel cancer, by Indigenous status, NSW, Qld, WA, SA and NT, people aged 50–74, 2014–2018**

| Indigenous status | Number | ASR |
|---|---|---|
| Indigenous | 161 | 36.5 |
| Non-Indigenous | 7,195 | 30.9 |
| Not stated[(a)] | 29 | . . |
| **Total** | **7,385** | **31.1** |

(a) Deaths where Indigenous status was not stated were included in the Total count and ASR calculation.

*Notes*

1. ASRs are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
2. Deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on the revised version; and deaths registered in 2017 and 2018 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

*Source:* AIHW NMD.

**Table A3.31: Mortality from bowel cancer for people aged 50–74, by sex, Australia, 1982–2020**

| | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| Year | Number | ASR | Number | ASR | Number | ASR |
| 1982 | 1,150 | 76.9 | 888 | 53.0 | 2,038 | 64.1 |
| 1983 | 1,256 | 82.0 | 928 | 54.6 | 2,184 | 67.4 |
| 1984 | 1,260 | 80.4 | 957 | 55.3 | 2,217 | 67.1 |
| 1985 | 1,280 | 80.2 | 999 | 57.5 | 2,279 | 68.2 |
| 1986 | 1,317 | 80.3 | 1,008 | 56.3 | 2,325 | 67.5 |
| 1987 | 1,361 | 82.0 | 1,028 | 57.1 | 2,389 | 68.9 |
| 1988 | 1,380 | 81.8 | 995 | 54.4 | 2,375 | 67.5 |
| 1989 | 1,370 | 79.7 | 985 | 53.0 | 2,355 | 65.7 |
| 1990 | 1,353 | 77.1 | 1,008 | 53.8 | 2,361 | 64.8 |
| 1991 | 1,369 | 77.1 | 944 | 48.9 | 2,313 | 62.4 |
| 1992 | 1,415 | 78.2 | 960 | 49.5 | 2,375 | 63.4 |
| 1993 | 1,390 | 74.8 | 996 | 50.4 | 2,386 | 62.2 |
| 1994 | 1,569 | 82.8 | 1,054 | 52.2 | 2,623 | 67.0 |
| 1995 | 1,475 | 76.6 | 992 | 48.6 | 2,467 | 62.0 |
| 1996 | 1,570 | 80.1 | 979 | 47.5 | 2,549 | 63.2 |
| 1997 | 1,534 | 76.8 | 1,029 | 49.1 | 2,563 | 62.5 |
| 1998 | 1,454 | 71.3 | 992 | 46.4 | 2,446 | 58.5 |
| 1999 | 1,528 | 73.4 | 904 | 41.7 | 2,432 | 57.1 |
| 2000 | 1,483 | 69.7 | 921 | 41.8 | 2,404 | 55.4 |
| 2001 | 1,447 | 66.6 | 920 | 41.0 | 2,367 | 53.5 |
| 2002 | 1,348 | 60.7 | 921 | 40.3 | 2,269 | 50.3 |
| 2003 | 1,418 | 62.7 | 883 | 38.0 | 2,301 | 50.2 |
| 2004 | 1,327 | 57.7 | 859 | 36.3 | 2,186 | 46.8 |
| 2005 | 1,394 | 59.4 | 822 | 34.1 | 2,216 | 46.5 |
| 2006 | 1,350 | 55.9 | 805 | 32.7 | 2,155 | 44.1 |
| 2007 | 1,345 | 54.0 | 846 | 33.0 | 2,191 | 43.4 |
| 2008 | 1,329 | 51.8 | 904 | 34.3 | 2,233 | 42.9 |
| 2009 | 1,362 | 51.0 | 871 | 32.2 | 2,233 | 41.5 |
| 2010 | 1,328 | 48.4 | 816 | 29.2 | 2,144 | 38.7 |
| 2011 | 1,288 | 45.1 | 772 | 26.6 | 2,060 | 35.7 |
| 2012 | 1,289 | 43.9 | 813 | 27.2 | 2,102 | 35.4 |
| 2013 | 1,317 | 43.6 | 802 | 25.8 | 2,119 | 34.6 |
| 2014 | 1,280 | 40.9 | 800 | 24.9 | 2,080 | 32.8 |
| 2015 | 1,266 | 39.5 | 822 | 25.1 | 2,088 | 32.2 |
| 2016 | 1,227 | 37.3 | 819 | 24.2 | 2,046 | 30.7 |
| 2017 | 1,222 | 36.3 | 808 | 23.2 | 2,030 | 29.6 |
| 2018 | 1,277 | 36.8 | 827 | 23.3 | 2,104 | 29.9 |
| 2019 | 1,173 | 33.4 | 786 | 21.5 | 1,959 | 27.3 |
| 2020 | 1,133 | 31.8 | 772 | 20.6 | 1,905 | 26.1 |

*Notes*

1. The 2019–2020 estimates are based on 2009–2018 mortality data. See Appendix D for further information.
2. ASRs are standardised to the Australian population as at 30 June 2001 and expressed per 100,000 people.
3. Deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on the revised version; and deaths registered in 2017 and 2018 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

*Source:* AIHW NMD.

# Additional tables for Chapter 4

**Table A4.1: Available diagnostic assessment outcomes of people aged 50–74, by age group and sex, Australia, assessed in 2018**

| Sex | Age group at assessment (years) | | Assessments | Available assessment results | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No issue noted[a] | Other colonoscopy diagnosis[b] | Biopsy awaiting histopathology[c] | Other histopathology diagnosis[d] | Confirmed non-advanced adenoma[e] | Confirmed advanced adenoma[e] | Suspected cancer[f] | Confirmed cancer[g] |
| Males | 50–54 | N | 3,961 | 1,751 | 376 | 1,136 | 79 | 262 | 235 | 108 | 14 |
| | | % | | 44.2 | 9.5 | 28.7 | 2.0 | 6.6 | 5.9 | 2.7 | 0.4 |
| | 55–59 | N | 3,349 | 1,485 | 321 | 964 | 61 | 216 | 205 | 86 | 11 |
| | | % | | 44.3 | 9.6 | 28.8 | 1.8 | 6.4 | 6.1 | 2.6 | 0.3 |
| | 60–64 | N | 6,703 | 2,801 | 589 | 2,006 | 146 | 459 | 457 | 208 | 37 |
| | | % | | 41.8 | 8.8 | 29.9 | 2.2 | 6.8 | 6.8 | 3.1 | 0.6 |
| | 65–69 | N | 5,255 | 2,104 | 516 | 1,621 | 87 | 373 | 357 | 166 | 31 |
| | | % | | 40.0 | 9.8 | 30.8 | 1.7 | 7.1 | 6.8 | 3.2 | 0.6 |
| | 70–74 | N | 8,688 | 3,653 | 841 | 2,531 | 126 | 606 | 585 | 289 | 57 |
| | | % | | 42.0 | 9.7 | 29.1 | 1.5 | 7.0 | 6.7 | 3.3 | 0.7 |
| | *50–74* | N | *27,956* | *11,794* | *2,643* | *8,258* | *499* | *1,916* | *1,839* | *857* | *150* |
| | | % | | *42.2* | *9.5* | *29.5* | *1.8* | *6.9* | *6.6* | *3.1* | *0.5* |
| Females | 50–54 | N | 3,563 | 1,872 | 409 | 785 | 85 | 173 | 136 | 84 | 19 |
| | | % | | 52.5 | 11.5 | 22.0 | 2.4 | 4.9 | 3.8 | 2.4 | 0.5 |
| | 55–59 | N | 3,057 | 1,633 | 304 | 702 | 69 | 163 | 122 | 52 | 12 |
| | | % | | 53.4 | 9.9 | 23.0 | 2.3 | 5.3 | 4.0 | 1.7 | 0.4 |
| | 60–64 | N | 5,464 | 2,608 | 672 | 1,351 | 101 | 323 | 265 | 129 | 15 |
| | | % | | 47.7 | 12.3 | 24.7 | 1.8 | 5.9 | 4.8 | 2.4 | 0.3 |
| | 65–69 | N | 4,204 | 1,981 | 521 | 1,055 | 71 | 242 | 196 | 116 | 22 |
| | | % | | 47.1 | 12.4 | 25.1 | 1.7 | 5.8 | 4.7 | 2.8 | 0.5 |
| | 70–74 | N | 6,855 | 3,201 | 779 | 1,758 | 116 | 424 | 350 | 194 | 33 |
| | | % | | 46.7 | 11.4 | 25.6 | 1.7 | 6.2 | 5.1 | 2.8 | 0.5 |
| | *50–74* | N | *23,143* | *11,295* | *2,685* | *5,651* | *442* | *1,325* | *1,069* | *575* | *101* |
| | | % | | *48.8* | *11.6* | *24.4* | *1.9* | *5.7* | *4.6* | *2.5* | *0.4* |

*(continued)*

**Table A4.1 (continued): Available diagnostic assessment outcomes of people aged 50–74, by age group and sex, Australia, assessed in 2018**

| Sex | Age group at assessment (years) | | Assessments | Available assessment results | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No issue noted[a] | Other colonoscopy diagnosis[b] | Biopsy awaiting histopathology[c] | Other histopathology diagnosis[d] | Confirmed non-advanced adenoma[e] | Confirmed advanced adenoma[e] | Suspected cancer[f] | Confirmed cancer[g] |
| Persons | 50–54 | N | 7,524 | 3,623 | 785 | 1,921 | 164 | 435 | 371 | 192 | 33 |
| | | % | | 48.2 | 10.4 | 25.5 | 2.2 | 5.8 | 4.9 | 2.6 | 0.4 |
| | 55–59 | N | 6,406 | 3,118 | 625 | 1,666 | 130 | 379 | 327 | 138 | 23 |
| | | % | | 48.7 | 9.8 | 26.0 | 2.0 | 5.9 | 5.1 | 2.2 | 0.4 |
| | 60–64 | N | 12,167 | 5,409 | 1,261 | 3,357 | 247 | 782 | 722 | 337 | 52 |
| | | % | | 44.5 | 10.4 | 27.6 | 2.0 | 6.4 | 5.9 | 2.8 | 0.4 |
| | 65–69 | N | 9,459 | 4,085 | 1,037 | 2,676 | 158 | 615 | 553 | 282 | 53 |
| | | % | | 43.2 | 11.0 | 28.3 | 1.7 | 6.5 | 5.8 | 3.0 | 0.6 |
| | 70–74 | N | 15,543 | 6,854 | 1,620 | 4,289 | 242 | 1,030 | 935 | 483 | 90 |
| | | % | | 44.1 | 10.4 | 27.6 | 1.6 | 6.6 | 6.0 | 3.1 | 0.6 |
| | **50–74** | **N** | **51,099** | **23,089** | **5,328** | **13,909** | **941** | **3,241** | **2,908** | **1,432** | **251** |
| | | **%** | | **45.2** | **10.4** | **27.2** | **1.8** | **6.3** | **5.7** | **2.8** | **0.5** |

(a) No cancers, adenoma, polyp or other diagnosis was recorded at colonoscopy and/or histopathology. Also includes 13,861 colonoscopies with no record of outcome, such as those reported by Medicare claim only.

(b) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy; for example, diverticulitis. Also includes diagnoses of polyps where none were sent to histopathology.

(c) Polyps detected at assessment and sent to histopathology for analysis. No histopathology report form received by Register.

(d) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy; for example, hyperplastic polyps.

(e) Confirmed adenoma figures were based on a combination of the assessment and histopathology report forms for a person received by the Register.

(f) Cancer suspected at assessment but not yet confirmed by histopathology.

(g) Cancer confirmed by histopathology.

*Source:* NBCSP Register as at 31 October 2019.

**Table A4.2: Available assessment outcomes of people aged 50–74, by state and territory, Australia, assessed in 2018**

| State | | Assessments | Available assessment results | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | No issue noted[a] | Other colonoscopy diagnosis[b] | Biopsy awaiting histopathology[c] | Other histopathology diagnosis[d] | Confirmed non-advanced adenoma[e] | Confirmed advanced adenoma[e] | Suspected cancer[f] | Confirmed cancer[g] |
| NSW | N | 13,708 | 7,708 | 1,199 | 2,776 | 212 | 747 | 698 | 309 | 59 |
| | % | | 56.2 | 8.7 | 20.3 | 1.5 | 5.4 | 5.1 | 2.3 | 0.4 |
| Vic | N | 13,416 | 6,187 | 1,703 | 3,431 | 241 | 804 | 610 | 385 | 55 |
| | % | | 46.1 | 12.7 | 25.6 | 1.8 | 6.0 | 4.5 | 2.9 | 0.4 |
| Qld | N | 11,665 | 3,603 | 1,234 | 3,897 | 327 | 1,132 | 1,040 | 344 | 88 |
| | % | | 30.9 | 10.6 | 33.4 | 2.8 | 9.7 | 8.9 | 2.9 | 0.8 |
| WA | N | 5,087 | 2,067 | 470 | 2,084 | 32 | 120 | 86 | 212 | 16 |
| | % | | 40.6 | 9.2 | 41.0 | 0.6 | 2.4 | 1.7 | 4.2 | 0.3 |
| SA | N | 4,760 | 2,437 | 470 | 1,133 | 66 | 264 | 260 | 114 | 16 |
| | % | | 51.2 | 9.9 | 23.8 | 1.4 | 5.5 | 5.5 | 2.4 | 0.3 |
| Tas | N | 1,495 | 770 | 164 | 276 | 38 | 85 | 123 | 34 | 5 |
| | % | . | 51.5 | 11.0 | 18.5 | 2.5 | 5.7 | 8.2 | 2.3 | n.p. |
| ACT | N | 821 | 255 | 71 | 266 | 24 | 80 | 88 | 25 | 12 |
| | % | | 31.1 | 8.6 | 32.4 | 2.9 | 9.7 | 10.7 | 3.0 | 1.5 |
| NT | N | 147 | 62 | 17 | 46 | 1 | 9 | 3 | 9 | – |
| | % | | 42.2 | 11.6 | 31.3 | n.p. | 6.1 | n.p. | 6.1 | – |
| **Australia** | **N** | **51,099** | **23,089** | **5,328** | **13,909** | **941** | **3,241** | **2,908** | **1,432** | **251** |
| | **%** | | **45.2** | **10.4** | **27.2** | **1.8** | **6.3** | **5.7** | **2.8** | **0.5** |

(a) No cancers, adenoma, polyp or other diagnosis was recorded at colonoscopy and/or histopathology. Also includes 13,861 colonoscopies with no record of outcome, such as those reported by Medicare claim only.

(b) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy; for example, diverticulitis. Also includes diagnoses of polyps where none were sent to histopathology.

(c) Polyps detected at assessment and sent to histopathology for analysis. No histopathology report form received by Register.

(d) A non-cancer, non-adenoma diagnosis was recorded at colonoscopy; for example, hyperplastic polyps.

(e) Confirmed adenoma figures were based on a combination of the assessment and histopathology report forms for a person received by the Register.

(f) Cancer suspected at assessment but not yet confirmed by histopathology.

(g) Cancer confirmed by histopathology.

*Note:* Differences in form return and varying pathway practices for diagnostic assessment may affect results across jurisdictions.

*Source:* NBCSP Register as at 31 October 2019.

# Additional tables for Chapter 5

**Table A5.1: Estimated participation rate for people aged 50–74, by language spoken at home, sex and age group, 2017–2018**

| Sex | Age group (years) | Estimated participation rate ranges (%) | | Total participation rate (%) |
|---|---|---|---|---|
| | | Language other than English | English | |
| Males | 50–54 | 14.9–20.4 | 27.5–30.0 | 29.8 |
| | 55–59 | 20.2–28.4 | 33.9–36.9 | 34.8 |
| | 60–64 | 24.6–35.2 | 41.0–44.6 | 41.0 |
| | 65–69 | 23.4–34.2 | 43.3–47.0 | 47.6 |
| | 70–74 | 29.4–43.9 | 53.2–58.0 | 52.2 |
| | *50–74* | *22.3–31.7* | *40.4–43.9* | *40.3* |
| Females | 50–54 | 18.1–23.3 | 31.6–34.0 | 34.0 |
| | 55–59 | 24.4–32.2 | 39.2–42.3 | 39.9 |
| | 60–64 | 28.8–38.7 | 46.6–50.3 | 46.5 |
| | 65–69 | 26.9–37.7 | 48.0–51.9 | 51.6 |
| | 70–74 | 28.5–41.5 | 55.3–60.3 | 54.1 |
| | *50–74* | *25.2–33.9* | *44.8–48.4* | *44.5* |
| Persons | 50–54 | 16.5–21.9 | 29.5–32.0 | 31.9 |
| | 55–59 | 22.3–30.4 | 36.6–39.6 | 37.3 |
| | 60–64 | 26.7–37.0 | 43.8–47.4 | 43.8 |
| | 65–69 | 25.2–36.0 | 45.6–49.5 | 49.6 |
| | 70–74 | 29.0–42.7 | 54.3–59.2 | 53.1 |
| | **50–74** | **23.8–32.8** | **42.6–46.1** | **42.4** |

*Source:* AIHW analysis of the NBCSP Register as at 31 October 2019 using 2016 Census data (see Appendix F for more information).

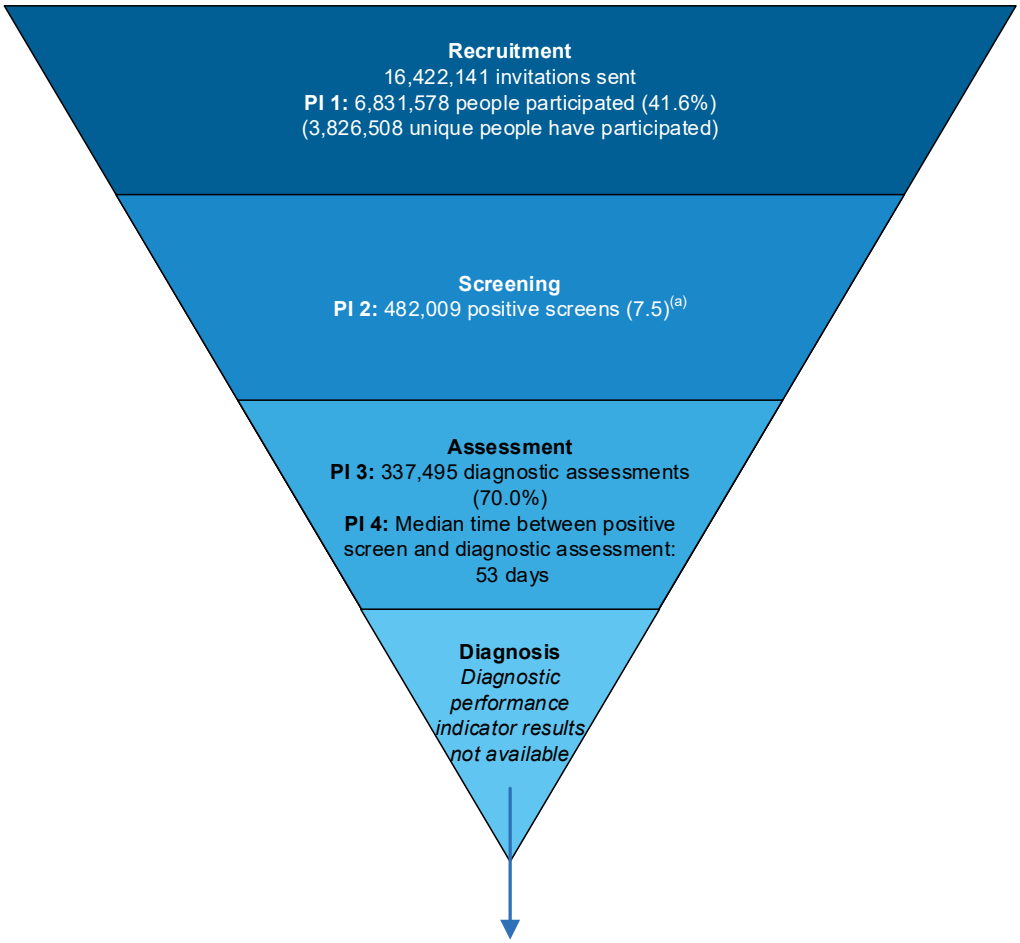
**Table A5.2: Estimated participation rate for people aged 50–74, by disability status, sex and age group, 2017–2018**

| Sex | Age group (years) | Estimated participation rate (%) | | | Total participation rate (%) |
|---|---|---|---|---|---|
| | | Severe or profound activity limitation | No severe or profound activity limitation | Not stated | |
| Males | 50–54 | 28.1 | 30.5 | 22.8 | 29.8 |
| | 55–59 | 29.4 | 36.5 | 18.0 | 34.8 |
| | 60–64 | 31.7 | 43.6 | 19.0 | 41.0 |
| | 65–69 | 33.6 | 51.2 | 22.9 | 47.6 |
| | 70–74 | 34.2 | 57.3 | 21.9 | 52.2 |
| | *50–74* | *33.1* | *42.5* | *20.9* | *40.3* |
| Females | 50–54 | 35.7 | 34.6 | 24.6 | 34.0 |
| | 55–59 | 37.9 | 41.6 | 18.2 | 39.9 |
| | 60–64 | 40.0 | 49.2 | 18.5 | 46.5 |
| | 65–69 | 40.5 | 55.1 | 20.7 | 51.6 |
| | 70–74 | 32.6 | 59.9 | 20.0 | 54.1 |
| | *50–74* | *38.2* | *46.8* | *20.6* | *44.5* |
| Persons | 50–54 | 32.1 | 32.6 | 23.6 | 31.9 |
| | 55–59 | 33.8 | 39.1 | 18.1 | 37.3 |
| | 60–64 | 35.9 | 46.4 | 18.8 | 43.8 |
| | 65–69 | 36.9 | 53.2 | 21.8 | 49.6 |
| | 70–74 | 33.4 | 58.6 | 21.0 | 53.1 |
| | **50–74** | **35.7** | **44.7** | **20.8** | **42.4** |

*Source:* AIHW analysis of the NBCSP Register as at 31 October 2019 using 2016 Census data (see Appendix F for more information).

# Appendix B: Overall NBCSP outcomes

**Figure B1: Summary of NBCSP performance indicators, Australia, August 2006 to June 2019**




***Assessment details*[b]**

| | | |
|---|---|---|
| No issue, or other diagnosis | 194,856 | (57.7%) |
| Polyp awaiting histopathology | 85,692 | (25.4%) |
| Non-advanced adenomas | 21,629 | (6.4%) |
| Advanced adenomas | 24,249 | (7.2%) |
| Suspected cancer | 8,560 | (2.5%) |
| Confirmed cancer | 2,509 | (0.7%) |

(a) Based on the 6,442,276 participants who returned a valid iFOBT.

(b) Based on available data. 'No issue, or other diagnosis' also includes 72,042 assessments with no record of outcome.

*Notes*

1. PI 1: 'people participated' counts the people who participated over the time the NBCSP has been operating. It is not a unique count of people, and people who participated multiple times over several years were counted more than once. 'Unique people participated' counts each unique person who has participated in the program at least once.
2. Assessment and diagnosis (PIs 3–9) rely on information being reported back to the Register. As return of NBCSP forms is not mandatory, there may be incomplete form return and incomplete data. See 'Current reporting limitations' on page 4 for more details.
3. PI 5a (adenoma detection rate), PI 5b (PPV of diagnostic assessment for detecting adenoma), PI 6a (colorectal cancer detection rate), PI 6b (PPV of diagnostic assessment for detecting colorectal cancer), PI 7 (interval cancer rate) and PI 8 (cancer clinico-pathological stage) are not reported due to data incompleteness or unavailability. See 'Current reporting limitations' on page 4 for more details.

*Source:* NBCSP Register as at 31 October 2019.

# Appendix C: National Bowel Cancer Screening Program information

## Target population

The target population list is compiled from those registered as an Australian citizen or migrant in the Medicare enrolment file, or registered with a Department of Veterans' Affairs gold card.

From 2020, roll-out of biennial screening for all eligible Australians in the target age group (50–74) was completed; eligible Australians will be sent an iFOBT screening kit and invited to screen every 2 years between their 50th and 74th birthdays. Table C1 outlines the starting dates of each phase, and the target age groups.

**Table C1: NBCSP phases and target populations**

| Phase | Start date | End date | Target ages (years) |
|---|---|---|---|
| 1 | 7 August 2006 | 30 June 2008 | 55 and 65 |
| 2 | 1 July 2008 | 30 June 2011[(a)] | 50, 55 and 65 |
| 2[(b)] | 1 July 2011 | 30 June 2013 | 50, 55 and 65 |
| 3 | 1 July 2013 | Ongoing | 50, 55, 60 and 65 |
| 4 | 1 January 2015 | | 50, 55, 60, 65, 70 and 74 |
| 4 | 1 January 2016 | | 50, 55, 60, 64, 65, 70, 72 and 74 |
| 4 | 1 January 2017 | | 50, 54, 55, 58, 60, 64, 68, 70, 72 and 74 |
| 4 | 1 January 2018 | | 50, 54, 58, 60, 62, 64, 66, 68, 70, 72 and 74 |
| 4 | 1 January 2019 | | 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72 and 74 |

(a) Eligible birth dates, and thus invitations, ended on 31 December 2010.

(b) Ongoing NBCSP funding commenced.

*Note:* The eligible population for all Phase 2 and 3 start dates incorporates all those turning the target ages from 1 January of that year onwards.

## Changes in monitoring the NBCSP

Regular users of annual NBCSP monitoring reports will notice that, from the *National Bowel Cancer Screening Program: monitoring report 2016* (AIHW 2016) onwards, monitoring reports differ from those released earlier. For a full summary of historical changes, please see *National Bowel Cancer Screening Program: monitoring report 2019* (AIHW 2019f). This section includes only the major changes since the 2019 monitoring report.

### Changes to reporting period

For this report, due to the transition of NBCSP Register data from the Department of Human Services (DHS) to the National Cancer Screening Register (NCSR) during mid-November 2019, analyses are based on events recorded in the Register up until 31 October 2019. This resulted in a truncated 10-month follow-up period for PI 3 and PI 4, rather than the standard follow-up period of 12 months. Given this, these results should not be compared with those for indicators presented in previous monitoring reports.

## Changes to the cohort monitored

Each indicator uses the latest available data rather than presenting results for the same invitation cohort across all indicators. This means that some indicators report results for different time periods than others and therefore for different cohorts. Where possible, indicator reporting periods in this report include the time frame 1 January 2018 to 31 December 2018.

## Estimated incidence and mortality numbers

This report includes 2020 estimates for bowel cancer incidence and mortality rather than actual numbers, which are not yet available for 2020. Estimates for 2020 provide data relevant to the timing of this report. The latest actual (non-estimated) incidence and mortality data are used to produce statistics by state and territory, remoteness and socioeconomic areas, and by Indigenous status, as 2020 estimates for these disaggregations are not yet available.

## Changes to incidence and mortality populations and rates for Indigenous Australians

To derive bowel cancer incidence and mortality rates for Indigenous Australians, this report used Indigenous population estimates and projections based on the 2016 Census (the most recent estimates available when this report was prepared).

The final estimated resident Aboriginal and Torres Strait Islander population as at 30 June 2016 was 19% larger than the estimated population as at 30 June 2011 (ABS 2018). The ABS notes that the population increase is greater than demographic factors alone can explain. As well, the 2016 estimated population was 7% larger than the 2016 projected population based on the 2011 Census.

The extent of the increase in the Indigenous population estimates between 2011 and 2016 means that any rates calculated with Indigenous population estimates based on the 2016 Census will be lower than those based on the 2011 Census, and should not be compared with rates calculated using populations based on previous Censuses.

## Changes to coding bowel cancer mortality

The Australian Institute of Health and Welfare (AIHW) uses the National Mortality Database (NMD) for reporting cancer mortality. The NMD is coded and compiled by the Australian Bureau of Statistics (ABS), and ABS advice notes that where ‘bowel cancer’ is recorded on the death certificate, internationally agreed rules state that the cancer should be coded to a less specific code (C26.0) as the specific site of the cancer is not known (ABS 2016). The ABS advises that the use of code C26.0 for ‘bowel cancer’ deaths leads to undercounting due to cancers of the colon and rectum (C18–C20). For this reason, monitoring reports from 2019 onwards use C18–C20, and also include C26.0 when reporting deaths from bowel cancer using the NMD. This differs from previous versions of this report (which did not include C26.0) and will result in a greater number of deaths being attributed to bowel cancer.

# Appendix D: Data sources

To provide a comprehensive picture of national cancer statistics in this report, a range of data sources were used, including AIHW and external data sources. These data sources are described in this appendix.

## AIHW Health Expenditure Database

The AIHW Health Expenditure Database contains estimates of expenditure by disease category, age group and sex for each of the following areas of expenditure: admitted patient hospital services, out-of-hospital medical services, prescription pharmaceuticals, optometrical and dental services, community mental health services and public health cancer screening.

The Data Quality Statement for the Disease Expenditure Database 2017–18 can be found on the AIHW website at http://meteor.aihw.gov.au/content/index.phtml/itemId/721415.

## Australian Burden of Disease Study

The Australian Burden of Disease Study (ABDS) 2015 used burden of disease analysis to measure the impact of 216 diseases and injuries on the health of the Australian population. The study provides a detailed picture of the burden of disease in the population in 2003, 2011 and 2015. It includes estimates of total, fatal and non-fatal burden for the total Australian population, as well as by state and territory, remoteness areas and socioeconomic areas. It also includes estimates of the contribution made by selected risk factors on the disease burden in Australia, and by socioeconomic areas for some risk factors.

The ABDS 2015 uses and adapts the methods of global studies to produce estimates that are more relevant to the Australian health policy context. The chosen reference period (2015) reflects the data availability from key data sources (such as the National Health Survey, deaths data, hospital admissions data and various disease registers) at the time of analysis.

Results from the study provide an important resource for health policy formulation, health service planning, and population health monitoring. The results provide a foundation for further assessments; for example, in relation to health interventions that aim to prevent or treat diabetes and its complications, and disease expenditure.

Full details on the various methods, data sources and standard inputs used in the ABDS 2015 are available in *Australian Burden of Disease Study 2015: methods and supplementary material* (AIHW 2019d).

## Australian Cancer Database

All forms of cancer, except basal and squamous cell carcinomas of the skin, are notifiable diseases in each Australian state and territory. Legislation in each jurisdiction requires hospitals, pathology laboratories and various other institutions to report all cases of cancer to their central cancer registry. An agreed subset of the data collected by these registries is supplied annually to the AIHW, where it is compiled into the Australian Cancer Database (ACD). The ACD currently contains data on all cases of cancer diagnosed from 1982 to 2015 for all states and territories; for 2016, it contains data for all jurisdictions except the Northern Territory.

Cancer reporting and registration is a dynamic process, and records in the state and territory cancer registries may be modified if new information is received. As a result, the number of cancer cases reported by the AIHW for any particular year may change slightly over time and may not always align with state and territory reporting for that same year.

The 2017–2020 estimates for incidence (plus 2016 estimates for the Northern Territory) used a method described in the technical notes of *Cancer data in Australia* (AIHW 2020).

The Data Quality Statement for the 2016 ACD can be found on the AIHW website at http://meteor.aihw.gov.au/content/index.phtml/itemId/729012.

# National Bowel Cancer Screening Program

This report uses National Bowel Cancer Screening Program (NBCSP) Register data to present statistics on the progression of eligible participants along the screening pathway for those invited into the NBCSP. It covers measures of participation, iFOBT results, and follow-up investigations and outcomes. However, data for follow-up investigations rely on non-mandatory form return from clinicians and are incomplete. Analyses are presented by age, sex, state and territory, remoteness and socioeconomic areas, Indigenous status, language spoken at home and disability status.

From mid-November 2019, the Register data were transitioned from the Department of Health Services (DHS) to the NCSR.

Due to this transition, October 2019 was the last complete month of data contained within the DHS register. Analyses in this report using NBCSP register data are based on events recorded in the DHS register up until 31 October 2019. This results in a truncated 10-month follow-up period for indicators PI 3 and PI 4, rather than the standard follow-up period of 12 months. Given this, these results should not be compared with those for indicators presented in previous monitoring reports.

Following the transition, the NCSR is the sole source of NBCSP data in Australia. This monitoring report will be the final one to use DHS NBSCP register data, with future editions sourcing data from the NCSR.

The Data Quality Statement for the NBCSP can be found on the AIHW website at http://meteor.aihw.gov.au/content/index.phtml/itemId/724637.

# National Death Index

The National Death Index is a database, housed at the AIHW, which contains records of all deaths occurring in Australia since 1980. The data are obtained from the registrars of Births, Deaths and Marriages in each state and territory. The National Death Index is designed to facilitate the conduct of epidemiological studies and its use is strictly confined to medical research.

Cancer incidence records from the ACD were linked to the National Death Index and used to calculate the survival and prevalence data presented in this report.

The Data Quality Statement for the National Death Index can be found at http://meteor.aihw.gov.au/content/index.phtml/itemId/480010.

# National Mortality Database

The AIHW NMD contains information supplied by the registrars of Births, Deaths and Marriages and the National Coronial Information System—and coded by the ABS—for deaths from 1964 to 2018. Registration of deaths is the responsibility of the Registry of Births, Deaths and Marriages in each state and territory. These data are then collated and coded by the ABS and maintained at the AIHW in the NMD.

In the NMD, both the year in which the death occurred and the year in which it was registered are provided. For the purposes of this report, actual mortality data are shown based on the year the death occurred, except for the most recent year (2018), where the number of people whose death was registered is used. Previous investigation has shown that the year of death and its registration coincide for the most part. However, in some instances, deaths at the end of each calendar year may not be registered until the following year. Thus, year of death information for the latest available year is generally an underestimate of the actual number of deaths that occurred in that year.

In this report, deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on the revised version; and deaths registered in 2017 and 2018 are based on preliminary versions. Revised and preliminary versions are subject to further revision by the ABS.

The 2019–2020 estimates for mortality were based on the 2009–2018 NMD and used a method as described in the technical notes of *Cancer data in Australia* (AIHW 2020).

The data quality statements underpinning the AIHW NMD can be found on the following ABS internet pages:

- ABS quality declaration summary for Deaths, Australia (ABS cat. no. 3302.0) http://www.abs.gov.au/ausstats/abs%40.nsf/mf/3302.0/
- ABS quality declaration summary for Causes of death, Australia (ABS cat. no. 3303.0) http://www.abs.gov.au/ausstats/abs%40.nsf/mf/3303.0/.

For more information on the AIHW NMD, see the section ‘Deaths data at AIHW’ on the following web site: https://www.aihw.gov.au/about-our-data/our-data-collections/national-mortality-database/.

Lastly, the ABS has noted that there is a high likelihood that many deaths coded to ‘C26.0 Malignant neoplasms of the intestinal tract, unspecified’ are deaths from colon, sigmoid, rectum and anus cancers (ABS 2016). Therefore, deaths coded as C26.0 have been included in bowel cancer deaths throughout this report (and in monitoring reports from 2019 onwards).

# Population data

Throughout this report, population data were used to derive bowel cancer incidence and mortality rates. The population data were sourced from the ABS using the most up-to-date estimates available at the time of analysis.

To derive its estimates of the resident populations, the ABS uses the 5-yearly Census of Population and Housing data and adjusts them as follows:

- all respondents in the Census are placed in their state or territory, statistical area and postcode of usual residence; overseas visitors are excluded
- an adjustment is made for people missed in the Census

- Australians temporarily overseas on Census night are added to the usual residence Census count.

Estimated resident populations are then updated each year from the Census data, using indicators of population change, such as births, deaths and net migration. More information is available from the ABS website at http://www.abs.gov.au.

For the Indigenous incidence and mortality comparisons in this report, the most recently released ABS Indigenous estimated resident populations were used. Those estimates were based on the 2016 Census of Population and Housing (ABS 2018).

# Appendix E: Classifications

## International Classification of Diseases for Oncology

Cancers were originally classified solely under the International Classification of Diseases and Related Health Problems (ICD) classification system, based on topographic site and behaviour. However, during the creation of the 9th Revision of the ICD in the late 1960s, working parties suggested creating a separate classification for cancers that included improved morphological information. The first edition of the International Classification of Diseases for Oncology (ICD-O) was subsequently released in 1976 and, in this classification, cancers were coded by both morphology (histology type and behaviour) and topography (site).

Since that first edition of the ICD-O, a number of revisions have been made, mainly in the area of lymphomas and leukaemias. The current edition, the 3rd Edition (ICD-O-3), was released in 2000 and is used by most state and territory cancer registries in Australia, as well as by the AIHW in regard to the ACD.

## Index of Relative Socio-economic Disadvantage

The Index of Relative Socio-economic Disadvantage (IRSD) is one of 4 Socio-Economic Indexes for Areas developed by the ABS. This index is based on factors such as average household income, education levels and unemployment rates. It is not a person-based measure, but an area-based measure of socioeconomic disadvantage in which small areas of Australia are classified on a continuum from disadvantaged to affluent. This information is used as a proxy for the socioeconomic disadvantage of people living in those areas and may not be correct for each person in that area.

In this report, the first socioeconomic area corresponds to geographical areas containing the 20% of the population with the greatest socioeconomic disadvantage according to the IRSD, and the fifth area corresponds to the 20% of the population with the least socioeconomic disadvantage. Caution should always be used when analysing the results of data that have been converted using correspondences, with the potential limitations of the data taken into account.

### Socioeconomic areas for screening data

Participants' areas of residence were assigned to socioeconomic areas using the participant's residential postcode according to the IRSD for 2016. Socioeconomic groupings (based on IRSD rankings) were calculated with a postal area correspondence, using a population-based method at the Australia-wide level. Participants whose postcode was not available in the socioeconomic correspondence were included in an 'Unknown' column in the relevant tables.

### Socioeconomic areas for incidence and mortality

Socioeconomic disadvantage areas were assigned to cancer cases according to the IRSD for 2011 of the Statistical Area Level 2 of residence at the time of diagnosis, and to deaths according to the Statistical Area Level 2 of residence at the time of death. The 2011 IRSD classifications were used for cancer cases as data were more complete using the 2011 Statistical Area Level 2, than the 2016 Statistical Area Level 2 within the 2016 ACD. For consistency between incidence and mortality reporting, 2011 classifications were also used for mortality reporting.

# International Statistical Classification of Diseases and Related Health Problems

The ICD is used to classify diseases and other health problems (including symptoms and injuries) in clinical and administrative records. The use of a standard classification system enables the storage and retrieval of diagnostic information for clinical and epidemiological purposes that is comparable between different service providers, across countries and over time.

In 1903, Australia adopted the ICD to classify causes of death and it was fully phased in by 1906. Since 1906, the ICD has been revised 9 times in recognition of new diseases (for example, Acquired Immunodeficiency Syndrome, or AIDS), increased knowledge of diseases, and changing terminology in describing diseases. The version currently in use, the ICD-10 (WHO 1992), was endorsed by the 43rd World Health Assembly in May 1990 and officially came into use in World Health Organization member states from 1994.

# International Statistical Classification of Diseases and Related Health Problems, Australian Modification

The Australian modification of the ICD-10, referred to as the ICD-10-AM (NCCH 2010), is based on the ICD-10. The ICD-10 was modified for the Australian setting by the National Centre for Classification in Health, with assistance from clinicians and clinical coders. Despite the modifications, compatibility with the ICD-10 at the higher levels of the classification (that is, up to 4-character codes) has been maintained. The ICD-10-AM has been used to classify diagnoses in hospital records in all states and territories since 1999–2000 (AIHW 2000).

# Remoteness Areas

The Remoteness Areas divide Australia for statistical purposes into broad geographic regions that share common characteristics of remoteness. The Remoteness Structure divides each state and territory into several regions on the basis of their relative access to services. There are 6 classes of Remoteness Area in the Remoteness Structure: *Major cities*, *Inner regional*, *Outer regional*, *Remote*, *Very remote* and *Migratory*. The category *Major cities* includes Australia's capital cities, except for Hobart and Darwin, which are classified as *Inner regional*. Remoteness Areas are based on the Accessibility and Remoteness Index of Australia, produced by the Australian Population and Migration Research Centre at the University of Adelaide.

## Remoteness Area for screening data

Postcodes of participants were mapped to the 2016 Australian Statistical Geography Standard Remoteness Areas. Residential postcodes were used where available, with non-residential identifiers (such as post office boxes) used otherwise. As some postcodes can span different Remoteness Areas, a weighting for each Remoteness Area is attributed to the postcode. This can result in non-integer counts for remoteness classifications. For example, the Northern Territory postal area 0822 is classified as 62.3% *Very remote*,

20.3% *Remote* and 17.3% *Outer regional*. Participants with postcode 0822 have their counts apportioned accordingly.

## Remoteness Area for incidence and mortality

Each unit record in the ACD contains 2011 Statistical Area Level 2 and 2016 Statistical Area Level 2, but not the Remoteness Area. To calculate both the cancer incidence rates and the cancer mortality rates by Remoteness Area, a correspondence was used to map the 2011 Statistical Area Level 2 to the 2011 Remoteness Area. The 2011 Statistical Area Level 2 classification was used for cancer cases as data were more complete using that than the 2016 Statistical Area Level 2 classification within the 2016 ACD. For consistency between incidence and mortality reporting, 2011 classifications were also used for mortality reporting.

Tables in this report based on geographical location were rounded to integer values. Where figures were rounded, discrepancies may occur between totals and sums of the component items. Participants whose postcode was not available in the remoteness correspondence were included in an ‘Unknown’ column in the relevant tables.

# Appendix F: Methodology for calculating participation for population subgroups

Determining participation rates by Indigenous status, language spoken at home, and disability status requires the number of screening invitations sent out to members of each of these population groups (the denominator) as well as the number of people in each group who returned a completed screening kit (the numerator).

Unfortunately, at present, information on these groups is known only for participants who choose to identify when they return a completed details form along with their iFOBT for analysis (the numerator). That is, membership of these population groups is known only for the 42% of people who participated, not for all invitees. As a result, it is not possible to accurately determine participation rates for these population groups.

An alternative method to estimate the number of invitations sent out to people in these population groups involves using the percentages of those aged 50–74 who reported as such at the 2016 Census.

To do so, percentages based on Census counts (tables F1–3) have been applied to the number of overall invitations (by age group and sex) to estimate invitation volumes by population groups. These estimated denominator data can then be used with the known population group numerator data gained from the returned participant details forms of those who participated.

## Estimated participation by Indigenous status

There are limitations in the data available to estimate Indigenous Australians' participation in the NBCSP, due to differences in the 'not stated' proportions between the 2017–2018 NBCSP participation data and the 2016 Census data (1.9% and 6.2% 'not stated', respectively). An overall rate for people aged 50–74 has been estimated, but these limitations should be considered in interpreting these data.

Using 2016 Census proportions (Table F1), the 2017–2018 participation rate for Indigenous Australians aged 50–74 was estimated to be 22.9%; this compares with an estimated participation rate for non-Indigenous Australians of 44.7% (giving the overall rate of 42.4% reported for PI 1).

Opportunities to improve the accuracy of calculating Indigenous participation rates will continue to be explored. New information may become available that enables improved estimates to be produced for future reports.

**Table F1: Percentage of the population by Indigenous status as identified in the 2016 Census, by sex and age**

| Sex | Age group (years) | % | | |
|---|---|---|---|---|
| | | Indigenous | Non-Indigenous | Not stated |
| Males | 50–54 | 1.98 | 91.65 | 6.37 |
| | 55–59 | 1.72 | 91.85 | 6.43 |
| | 60–64 | 1.46 | 92.08 | 6.46 |
| | 65–69 | 1.12 | 92.35 | 6.53 |
| | 70–74 | 0.86 | 92.44 | 6.70 |
| | *50–74* | *1.50* | *92.02* | *6.48* |
| Females | 50–54 | 2.14 | 92.28 | 5.58 |
| | 55–59 | 1.84 | 92.41 | 5.75 |
| | 60–64 | 1.54 | 92.53 | 5.93 |
| | 65–69 | 1.19 | 92.59 | 6.22 |
| | 70–74 | 0.96 | 92.49 | 6.55 |
| | *50–74* | *1.60* | *92.45* | *5.95* |
| Persons | 50–54 | 2.06 | 91.97 | 5.97 |
| | 55–59 | 1.78 | 92.14 | 6.08 |
| | 60–64 | 1.50 | 92.31 | 6.19 |
| | 65–69 | 1.15 | 92.47 | 6.37 |
| | 70–74 | 0.92 | 92.46 | 6.62 |
| | **50–74** | **1.55** | **92.24** | **6.21** |

*Source:* 2016 Australian Census.

## Estimated participation by language spoken at home

Census data for population subgroups broken down by the language they spoke at home include a ‘not stated’ percentage for those who did not respond to this question (Table F2). This is equal to the ‘not stated’ option for those who participate and choose not to provide population group information.

For language spoken at home, the NBCSP Register assumes all who do not self-identify a language speak English. As a result, there is no ‘not stated’ language spoken at home data for participants (numerator) to match the ‘not stated’ percentage data from the Census (used for the denominator).

To resolve this issue, a participation range method was used for language spoken at home. The rate is provided as a range that covers what the percentage would be if the entire ‘not stated’ percentage was added to the ‘English’ column, and what it would be if the entire ‘not stated’ percentage was added to the ‘Language other than English’ column (Table 5.4).

**Table F2: Percentage of the population by language spoken at home as self-identified in the 2016 Census, by sex and age**

| | | % | | |
|---|---|---|---|---|
| **Sex** | **Age group (years)** | **English** | **Language other than English** | **Not stated** |
| Males | 50–54 | 74.71 | 18.51 | 6.79 |
| | 55–59 | 76.68 | 16.60 | 6.72 |
| | 60–64 | 77.61 | 15.64 | 6.75 |
| | 65–69 | 78.64 | 14.58 | 6.78 |
| | 70–74 | 78.34 | 14.53 | 7.14 |
| | *50–74* | *76.99* | *16.20* | *6.81* |
| Females | 50–54 | 74.56 | 19.79 | 5.65 |
| | 55–59 | 75.91 | 18.23 | 5.86 |
| | 60–64 | 76.38 | 17.59 | 6.03 |
| | 65–69 | 77.67 | 15.93 | 6.40 |
| | 70–74 | 77.74 | 15.30 | 6.97 |
| | *50–74* | *76.27* | *17.63* | *6.10* |
| Persons | 50–54 | 74.63 | 19.16 | 6.21 |
| | 55–59 | 76.28 | 17.44 | 6.28 |
| | 60–64 | 76.98 | 16.64 | 6.38 |
| | 65–69 | 78.15 | 15.27 | 6.59 |
| | 70–74 | 78.03 | 14.92 | 7.05 |
| | **50–74** | **76.62** | **16.93** | **6.45** |

*Source:* 2016 Australian Census.

## Estimated participation by disability status

Census data for population subgroups broken down by disability status include a ‘not stated’ percentage for those who did not respond to this question (Table F3). This is equal to the ‘not stated’ option for those who participate and choose not to provide population group information.

Using the Census data to estimate denominators, estimated participation rates by disability status were able to be calculated (Table 5.5).

**Table F3: Percentage of the population by disability status as self-identified in the 2016 Census, by sex and age**

| | | % | | |
|---|---|---|---|---|
| **Sex** | **Age group (years)** | **Has need for assistance with core activities** | **Does not have need for assistance with core activities** | **Not stated** |
| Males | 50–54 | 3.77 | 88.68 | 7.55 |
| | 55–59 | 4.69 | 87.86 | 7.44 |
| | 60–64 | 6.41 | 86.17 | 7.42 |
| | 65–69 | 8.24 | 84.32 | 7.44 |
| | 70–74 | 10.51 | 81.75 | 7.75 |
| | *50–74* | *6.29* | *86.21* | *7.50* |
| Females | 50–54 | 4.14 | 89.28 | 6.57 |
| | 55–59 | 5.16 | 88.13 | 6.70 |
| | 60–64 | 6.50 | 86.65 | 6.85 |
| | 65–69 | 7.46 | 85.39 | 7.15 |
| | 70–74 | 10.47 | 82.04 | 7.49 |
| | *50–74* | *6.37* | *86.74* | *6.90* |
| Persons | 50–54 | 3.96 | 88.99 | 7.05 |
| | 55–59 | 4.93 | 88.00 | 7.06 |
| | 60–64 | 6.45 | 86.42 | 7.13 |
| | 65–69 | 7.84 | 84.87 | 7.29 |
| | 70–74 | 10.49 | 81.90 | 7.62 |
| | **50–74** | **6.33** | **86.48** | **7.19** |

*Source:* 2016 Australian Census.

# Acknowledgments

Rachel Sherwin, Peter Nguyen and David Meere prepared this monitoring report under the direction of Fan Xiang, Fleur de Crespigny and Richard Juckes. The authors thank the Bowel Screening Section at the Department of Health, who provided valuable input.

The Department of Human Services supplied the National Bowel Cancer Screening Program Register data for this report.

The financial support of the Bowel Screening Section of the Department of Health is gratefully acknowledged.

# Abbreviations

| | |
|---|---|
| ABDS | Australian Burden of Disease Study |
| ABS | Australian Bureau of Statistics |
| ACD | Australian Cancer Database |
| ACT | Australian Capital Territory |
| AIHW | Australian Institute of Health and Welfare |
| ASGS | Australian Statistical Geography Standard |
| ASR | age-standardised rate |
| DALY | disability-adjusted life year |
| DHS | Department of Human Services |
| ICD | International Classification of Diseases and Related Health Problems |
| ICD-O | International Classification of Diseases for Oncology |
| iFOBT | immunochemical faecal occult blood test |
| IRSD | Index of Relative Socio-economic Disadvantage |
| MBS | Medicare Benefits Schedule |
| NBCSP | National Bowel Cancer Screening Program |
| NCSR | National Cancer Screening Register |
| NMD | National Mortality Database |
| NSW | New South Wales |
| NT | Northern Territory |
| PHCP | primary health-care practitioner (general practitioner or other primary health-care provider) |
| PI | performance indicator |
| PPV | positive predictive value |
| Qld | Queensland |
| SA | South Australia |
| Tas | Tasmania |
| TNM | Tumour, Nodes and Metastasis |
| Vic | Victoria |
| WA | Western Australia |
| YLD | years lived with disability |
| YLL | years of life lost |

# Symbols

| | |
|---|---|
| — | nil or rounded to zero |
| . . | not applicable |
| > | greater than |
| ≤ | less-than or equal to |
| n.a. | not available |
| n.p. | not publishable because of small numbers, confidentiality or other concerns about the quality of the data |
| N | number |

# Glossary

**adenocarcinoma:** A **cancer** that began in a glandular epithelial cell (see **epithelium**).

**adenoma (adenomatous polyp):** A **benign** tumour that arises from epithelial cells (see **epithelium**). All adenomas have **malignant** potential. Adenomas in the rectum or colon have a higher chance of developing into **cancer** (see **adenocarcinoma**) than adenomas in most other organs. An adenoma can be classified from highest risk (advanced) to lowest risk (diminutive).

**age-specific rate:** The number of cases occurring in each specified age group by the corresponding population in the same age group, expressed as 'per 100,000 people'.

**age standardisation:** A method of removing the influence of age when comparing populations with different **age structures**. This is usually necessary as the rates of many diseases vary strongly (usually increasing) with age. The age structures of the different populations are converted to the same 'standard' structure; then the disease rates that would have occurred with that structure are calculated and compared.

**age-standardised rate:** A rate that results from removing the influence of age by converting the **age structures** of the different populations to the same 'standard' structure. This provides a more valid way to compare rates from populations with different age structures.

**age structure:** The relative number of people in each age group in a population.

**asymptomatic:** Describes being without symptoms.

**benign:** Describes non-cancerous tumours that may grow larger but do not spread to other parts of the body. Not **malignant**.

**bowel (colorectal) cancer:** A cancer definition that comprises both **cancer** of the colon and cancer of the rectum.

**cancer death:** A death where the underlying cause of death is indicated as **cancer**. People with cancer who die of other causes are not counted in the mortality statistics in this publication.

**cancer (malignant neoplasm):** A large range of diseases whose common feature is that some of the body's cells become defective, begin to multiply out of control, can invade and damage the area around them, and can also spread to other parts of the body to cause further damage.

**colonoscopy:** A diagnostic assessment procedure to examine the bowel using a special scope (colonoscope), usually carried out in a hospital or day clinic.

**crude rate:** The number of events over a specified period of time (for example, a year) divided by the total population. The crude rate (for participation, attendance and follow-up) is the proportion of people who have proceeded to a key point on the screening pathway (at the date of the data extraction) out of those eligible to proceed to that point.

The crude proportions will generally underestimate the true proportions of the population that participated in the National Bowel Cancer Screening Program. This is because, at any point in time, there are members of the population who are eligible to proceed to the next point on the screening pathway but who have not yet had time to do so. Similarly, there is a time lag between when a person with a positive **iFOBT** result is referred for a **colonoscopy** and when they can actually have the procedure.

**defer:** Describes the action of an invitee who would like to participate in the National Bowel Screening Program but is unable to do so at this time. Such invitees will be contacted once the nominated deferral period has elapsed.

**epithelium:** The tissue lining the outer layer of the body, the digestive tract and other hollow organs and structures.

**false negative:** A screening test result that incorrectly indicates a person does not have a marker for the condition being tested when they do have the condition. Not all screening tests are completely accurate, so false negative results cannot be discounted. Further, with an **iFOBT** test for bowel cancer, if a **polyp**, **adenoma** or **cancer** is not bleeding at the time of the test, it may be missed by the screening test.

**false positive:** A screening test result that incorrectly indicates that a person has the marker being tested when they do not have the condition. As **iFOBT** tests detect blood in stool (which may be caused by a number of conditions), a false positive finding for bowel cancer may still detect other non-bowel cancer conditions, or precancerous **polyps** or **adenomas**.

**iFOBT result:** Results from correctly completed **Immunochemical Faecal Occult Blood Tests (iFOBTs)**, classified by pathologists into 1 of 3 groups:

1. positive (blood is detected in at least 1 of 2 samples)
2. negative (blood is not detected)
3. inconclusive (the participant is asked to complete another kit).

**Immunochemical Faecal Occult Blood Test (iFOBT):** A screening test used to detect tiny traces of blood in a person's faeces that may be a sign of bowel cancer. The iFOBT is a central part of Australia's National Bowel Cancer Screening Program. Pathologists categorise completed NBCSP iFOBTs into 1 of 3 groups:

1. correctly completed
2. incorrectly completed. Participants are given specific instructions on how to complete the iFOBT. Any tests not completed according to these instructions are classified as incorrectly completed
3. unsatisfactory. Unsatisfactory tests refer to those tests that could not be processed due to a problem with the kit (for example, an expired kit, or a completed kit that has taken more than 2 weeks in transit to arrive for testing).

Participants with iFOBTs that are not correctly completed are requested to complete another iFOBT. Correctly completed kits are analysed.

**histopathology:** The microscopic study of the structure and composition of tissues and associated disease.

**incidence:** The number of new cases (of an illness or event, and so on) occurring during a given period.

**Indigenous:** A person of Aboriginal and/or Torres Strait Islander descent who identifies as Aboriginal and/or Torres Strait Islander.

**International Statistical Classification of Diseases and Related Health Problems**: The World Health Organization's internationally accepted classification of death and disease. The 10th Revision (ICD-10) is currently in use.

**invitee:** A person invited to participate in the National Bowel Cancer Screening Program.

**lymph node:** A mass of lymphatic tissue, often bean-shaped, that produces adaptive immune system cells and through which lymphatic fluid filters. These nodes are located throughout the body.

**malignant:** A tumour with the capacity to spread to surrounding tissue or to other sites in the body.

**metastasis:** The process by which cancerous cells are transferred (or spread) from one part of the body to another; for example, via the lymphatic system or the bloodstream.

**morbidity:** Ill health in an individual, or the level of ill health in a population or group.

**opt out:** Describes what invitees do who advise that they do not wish to participate in the National Bowel Cancer Screening Program, now or in the future. Invitees who opt out will not be contacted again. Invitees may elect to opt back in at a later date.

**participant:** A person who has agreed to participate in the National Bowel Cancer Screening Program by returning a completed **iFOBT** kit and participant details form.

**polyp:** A small growth of colon tissue that protrudes into the colonic or rectal lumen. Polyps are usually asymptomatic, but sometimes cause visible rectal bleeding and, rarely, other symptoms. Polyps have the potential to become **adenomas** and, later, **cancers**.

**polypectomy:** The removal of a **polyp**.

**positive predictive value:** Proportion of people with a positive **iFOBT** screen who have **adenomas** or **cancer** detected at **colonoscopy** and confirmed by **histopathology**.

**prevalence:** The number or proportion (of cases, instances, and so forth) in a population at a given time.

**primary health-care practitioner (PHCP):** A general practitioner or other primary health-care provider. This may include remote health clinics or specialists providing general practitioner services.

**prognosis:** The likely outcome of an illness.

**radiation therapy:** The treatment of disease with any type of radiation, most commonly with ionising radiation, such as X-rays, beta rays and gamma rays.

**screening:** Repeated testing, at regular intervals, of apparently well people to detect a medical condition at an earlier stage than would otherwise be the case. Screening tests are not diagnostic (for example, see **false positive**, **false negative** and **positive predictive value**); therefore, people who receive a positive screening result require further assessment and diagnosis to determine whether or not they have the disease or risk marker being screened for.

**target population:** A population that comprises Australians aged 50–74 who were registered as Australian citizens or migrants in the Medicare enrolment file, or are registered with a Department of Veterans' Affairs gold card. The Australian Government is rolling out biennial screening for those in the target age group.

**underlying cause of death:** The disease or injury that initiated the train of events leading directly to death, or the circumstances of the accident or violence that produced the fatal injury.

**valid results: iFOBT** results that are classified as either positive or negative. Inconclusive results are excluded.

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# List of tables

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# Related publications

The following AIHW publications relating to bowel cancer and cancer screening more generally might also be of interest:

- AIHW 2020. Cancer data in Australia. Cat no. CAN 122. Canberra: AIHW.
- AIHW 2020. National cancer screening programs participation data. Cat no. CAN 114. Canberra: AIHW.
- AIHW 2019. BreastScreen Australia monitoring report 2019. Cancer series no. 127. Cat. no. CAN 128. Canberra: AIHW.
- AIHW 2019. Cancer in Australia 2019. Cancer series no. 119. Cat. no. CAN 123. Canberra: AIHW.
- AIHW 2019. National Cervical Screening Program monitoring report 2019. Cancer series no. 125. Cat. no. 132. Canberra: AIHW.
- AIHW 2018. Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program: 2018. Cat. no. CAN 113. Canberra: AIHW.
- AIHW 2018. Analysis of cancer outcomes and screening behaviour for national cancer screening programs in Australia. Cat. no. CAN 115. Canberra: AIHW.
- AIHW 2018. National Bowel Cancer Screening Program: monitoring report 2018. Cat. no. CAN 112. Canberra: AIHW.
- AIHW 2014. Analysis of bowel cancer outcomes for the National Bowel Cancer Screening Program. Cat. no. CAN 87. Canberra: AIHW.
- AIHW 2014. Key performance indicators for the National Bowel Cancer Screening Program: technical report. Cancer series no. 87. Cat. no. CAN 84. Canberra: AIHW.

This report presents statistics on the National Bowel Cancer Screening Program (NBCSP) using key performance indicators. Of those who were invited to participate in the NBCSP between 1 January 2017 and 31 December 2018, 42% undertook screening. For those who screened in 2018, 7% had a positive result warranting further assessment. One in 30 participants who underwent a follow-up diagnostic assessment was diagnosed with a confirmed or suspected cancer.

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